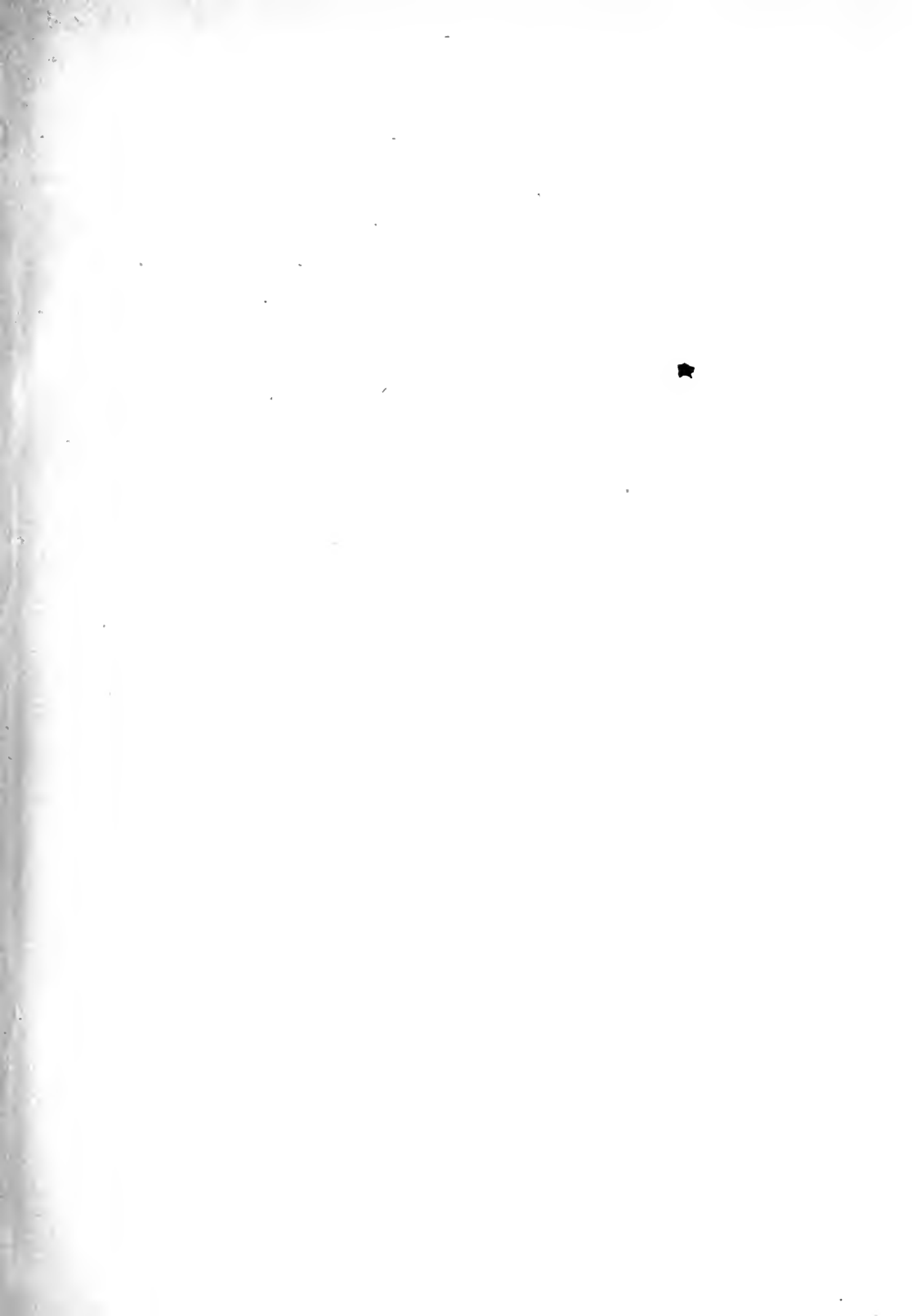


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ARCHIVES OF PEDIATRICS

A MONTHLY JOURNAL DEVOTED TO THE
DISEASES OF INFANTS AND CHILDREN

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142

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Original Communications.

PERIBRONCHITIS AND INTERSTITIAL PNEUMONIA.*

BY A. JACOBI, M.D., LL.D.,

New York.

There are those, like Stoffela, in whose opinion interstitial pneumonia is never primary, or, like Eichhorst, who believe it is mostly secondary. In Jürgensen's opinion interstitial pneumonia is not a clinical, but an anatomical entity.

The father of modern macroscopical pathological anatomy, Rokitansky, claimed that tuberculosis and hyperplasia of connective tissue could originate on a common soil, that is, alongside each other. Heschl reported his observations of its endemic character, finding it rarely in Vienna, frequently in Cracow. Some met it exclusively with other diseases, Buhl with what he described as desquamative pneumonia, and Lebert with croupous pneumonia. Some German-speaking authors, however, like Amberger have a few cases of a primary diffuse chronic interstitial pneumonia. Eppinger and Wagner declared it to be an occasional independent disease of the lung parenchyma, and Heitler, in a long but interesting paper in the *Vien. Med. Wochenschrift*, Nos. 50, 51 and 52 of 1884, publishes 5 cases of a primary interstitial pneumonia in adults. He calls the condition a parenchymatous pneumonia. He quotes amongst the French, Grisolle and Chomel, who knew of the independent occurrence of interstitial pneumonia. Both, however, describe it to be exceedingly rare. Andral must have seen it more frequently. He makes the positive statement that it need not necessarily develop out of the croupous form, that it may be either local or

* Address delivered before the Philadelphia Pediatric Society, December 9, 1902.

very extensive, and that while an acute course is observed, it may be chronic and result either from an acute affection or run its independent course as a slow process. The modern large manual of Grancher, Marfan and Comby scarcely mentions it.

Amongst the older English writers Corrigan speaks of it as an independent slow inflammation of the pulmonary connective tissue; Stokes knows both an acute induration, and a cirrhotic, grayish, rather anemic sclerosis, and Walshe claims that before cirrhosis can develop, there must be a previous hypertrophy of tissue. (Heitler). Such observations prove the soundness of British medical life. There has been no time in English medicine, in which mere theories and fads could distort the clear sight of English clinicians. Even Brown had to look for enthusiastic support, which he could not find at home, in Germany, France and America.

In the *Traite de Médecine* by Charcot, Bouchard and Brissaud, Vol. IV., p. 471, the scleroses of the lungs are treated by A. B. Marfan. He divides them into the lobar, bronchial or lobular, and pleural varieties. The first includes malaria poisoning, the second dust inhalation, grippe, syphilis and senile changes; the third comprehends those originating in pleural or cardiac diseases. Under a fourth heading he describes what he calls badly defined forms of pulmonary sclerosis. This form, first mentioned by Laennec and Andral, and studied by a number of histologists, consists in an affection of the whole interlobular, interalveolar, and peribronchitic connective tissue. The first stage is a cell infiltration, the second fibrous transformation. This form has often, he says, been taken for tuberculosis in spite of the absence of bacilli and on account of the presence of abundant bloody and serous expectorations. In the few cases carefully studied by Heschl, Eppinger, Marchand and Wagner (13 years, 47 years, 27 years, 47 years) the first days behaved like a genuine pneumonia; but dyspnea and cyanosis led to death. Marfan concludes that these cases also belong to his lobar sclerosis, that means that form which is directly connected with, or derived from, croupous pneumonia.

Our text-books, Tyson, Anders, Osler and others, hardly mention chronic pneumonia except in connection with other forms. In Osler's work diffuse interstitial pneumonia is met with under the following conditions: (1) As a sequence of acute fibrinous pneumonia. (2) As a sequence of chronic bronchopneumonia.

(3) It is pleurogenous. (4) Due to the inhalation of dust. (5) Due to syphilis. (6) Due to compression by aneurism or a new growth, or the irritation of a foreign body in a bronchus. In another part of his book (p. 331 of the fourth edition) he appears to explain the retracted condition of the apices by the presence of tuberculosis only.

In a very able, concise and elaborate article, Winslow Anderson, in the sixth volume of the *Twentieth Century Practice*, treats of the subject of chronic pneumonia, which according to him is synonymous with interstitial pneumonia, cirrhosis of the lung, induration of the lung, pulmonary fibrosis, and fibroid phthisis. Other authors have additional names. His first statement is that it may be local, when it encapsulates morbid deposits and irritating substances, such as tuberculous deposits, hemorrhagic infarctions, abscesses, or foreign bodies; it is more apt to be general, when it depends on croupous or lobular pneumonia or pleuritis. It is always, in his opinion, a secondary disease, and its earlier symptoms are always disguised by the pre-existing affection. It may be suspected when, after a lobar or lobular pneumonia has terminated, the dullness on percussion, bronchial breathing, slight elevation of temperature and cough and dyspnea continue beyond the period at which resolution should have taken place. There is mostly bronchial catarrh and bronchiectasis, ulceration of the bronchial mucous membrane, putrefaction of the secretions, and hectic fever; always cough and pyrexia, sometimes blood in the sputa. Indeed, there is nothing but your fibroid phthisis.

In the supplement to the *Twentieth Century Practice* which appeared two weeks ago—in the language of the trade it is 1903—the same author speaks of chronic pneumonia “as the so-called interstitial or fibroid phthisis.” That is why his treatment is, as follows: warm, equally humid climate, no high altitudes, temperature of the room not below 60° F., four meals a day of highly nutritious or predigested food stuffs, olive oil one hour after meals, balsamics for copious expectoration, atropin, dionin and subcutaneous injections of heroin hydrochlorate in $\frac{1}{24}$ grain doses. Thereto he adds narcotics and hypnotics, which mean the armamentarium required for those whose only claim is euthanasia.

In his pathologic-anatomical diagnosis of 1900, Orth distinguishes five forms of pneumonia, the fibrinous, the catarrhal,

the purulent (inclusive of the pyemic), the caseous and the productive; all of them have in common the formation of new connective tissue. In the fibrinous variety carnification, as it is here called, is a rare result; in it the alveolar septa are thickened by new formed connective tissue, and by vascular granulation tissue. Both compress the alveoli with its exudate, which undergoes absorption. This process is almost always complicated with pleurisy and bronchitis. Catarrhal pneumonia exhibits a similar process, when the exudate contains much fibrin. Tissue hyperplasia is the result. Caseous inflammation is either a bronchiolitis complicated with fibrous pneumonia; or a true caseous hepatisation with the proliferation of connective tissue cells in the alveolar septa and mainly the intima of the blood vessels. Complication with tuberculosis is not uncommon in this form. Or it is caseous peribronchitis, which is met with in bronchitis and in pneumonia. It is a real new formation of tissue, not the result of inflammation, is found in small deposits and for that reason often taken for tuberculosis. Orth's fifth variety of pneumonia is the productive, that is, cirrhosis. It is found in the cicatrizations around infarctions, new caseous processes, in the shape of peribronchitis, fibrous bronchitis and fibrous pneumonia. The peripheries of these deposits are gray, their centres yellow. In fibrous pneumonia the septa are thickened by connective tissue, they feel and cut like fibrous tissue, there are long grayish septa, the lumina of the alveoli are narrow, their walls sometimes adherent. These indurations are preferably found in and near the apices, and if there be caseous masses nearby, they may heal under the influence of pressure, and lead to the autopsy-findings of calcium or of bone.

In the consideration of interstitial pneumonia we meet with syphilis as one of its main causes in all our literature.

Syphilis of the lung was known four hundred years ago. Paracelsus and Morgagni described it; John Hunter denied and thought he buried it; Ricord and numerous others resuscitated it, and all of us have made its acquaintance. In the young it is more often encountered than in the adult, at least in our era; in hereditary syphilis it is much more frequent than in the acquired, on account of the direct connection in the fetus, through the ductus venosus Arantii, of the umbilical and cava veins. Many of the syphilitic manifestations are known as white pneumonia; it is met with in the still-born or those who die soon.

In one or more lobes, sometimes over both lungs, the alveoli are filled with epithelia in fatty degeneration, and the parenchymatous septa are also infiltrated with cells; occasionally there are gummata. But this is not the only change for there is no doubt (Orth) that in white pneumonia there is an interstitial pneumonia as well; and Cornil describes a fibrous change of lymph vessels, with nodes in their walls and caseous degeneration of the endothelium.

Of more import both to the patient and the physician is the exclusively interstitial form of syphilitic pneumonia. There is proliferation of cells, increase of the tissue surrounding the vessels and the bronchi, with subsequent cicatricial shrinking. Gummata are rare in this form, cavities not very infrequent. It is often complicated with the same changes in the pleura. Indeed, many cases appear to originate in the pleura, or in the hilus. Hyperplasia and induration are very marked in this syphilitic form, to such an extent that atrophy of the glands in the mucous membranes, disturbances of the pulmonary circulation and secondary disorders of the heart (hypertrophy and dilatation), are nowhere more frequent. The claim, however, that these heart disorders are a symptom of no other form of interstitial proliferation is untenable. This form is not necessarily fatal, not even at puberty. The puny, undersized and underweight children of from five to eight years that thrive better after a protracted antisyphilitic treatment than after iron and arsenic show frequently the symptoms of interstitial infiltration and retraction.

A non-specific inflammation, at first rich in cells and succulent, afterwards devoid of cells and retracting and indurating, is met with along the outside of the bronchi, in the blood vessels, in the interlobular and interalveolar connective tissue, with compression and disappearance of the alveoli. There is in the beginning a new formation of capillaries, and an immigration of cells beside those that develop locally. The thickening of the cellular tissue is very often, not always, dependent on pleuritis; in that case there is, in autopsies, a distinct fibrillation extending from the pleura into the lung. Very often, however, the same process begins in the interior, and leaves the pleura intact. The whole process is almost always local, on one side, in one lobe, or in part of a lobe. That is, mainly when the process is independent. Then it is mostly an apex that is affected, almost always the right, and slowly the disease extends downwards to the neighborhood of the third

rib or below. The results are briefly:—deficient respiration, retracted lung tissue, deformity of the chest, vicarious emphysema, bronchiectasis with copious secretion, and occasional abscesses, or new connective tissue formations in the shape of firm indurations, or even osseous deposits. But there are many more cases that do not run through the whole course of this degeneration, but remain indolent and innocuous in the stage of retraction and cirrhotic atrophy.

“In most of what I have presented to you I have meant to do justice to the observation on the dead. Clinicians, or let us be modest and say practitioners like ourselves, know what they owe to the study of the dead body by ourselves and our masters, Morgagni, Broussais and Rokitansky. But is there an exclusive value in the description of the latest result of a morbid process? Three months or years may have passed since it commenced, suspected first, and closely watched by you in all its varieties of changes, until the dissecting knife took the place of your stetho- and microscope. What can the condition encountered between the last breath and the burial tell then about the first beginning of the process? Its origin and development are under the observation and care of the practising physician. About them he knows more than the pathologist. Moreover, he sees a great many cases that are never seen by the anatomist. In fact, the vast majority of cases of interstitial pneumonia and peribronchitis are such as get well, if not anatomically, still practically, and their owners, when they finally die, are taken off not by the remnants of their interstitial hyperplasia, but by some incidental process. It is particularly in infancy and childhood that this class of hypertrophy of the connective tissue, terminating in shrinking, is most frequently, almost exclusively, observed.

I think I have quoted enough to show the opinions of some of the best authorities. Let me add a single quotation which may be the text for my sermon. In the different editions of my “*Therapeutics of Infancy and Childhood*,” and in previous writings, I find what follows: “There are three anatomical varieties of pneumonia in infancy and childhood; the catarrhal or lobular, the fibrinous or lobar, and the interstitial. Nearly two-thirds of the cases belong to the first; nearly one-third to the second, and a limited number to the third class. Not one of them, however, is always found pure and uncomplicated. Indeed, complications of the lobular with the lobar, of either of them with the inter-

stitial, and possibly of each of the three with pleuritis, are quite common. . . . Interstitial pneumonia runs the most protracted course. Fever is liable to be high and prolonged over weeks and months; recovery is rarely complete, induration and retraction of the pulmonary tissue, with bronchiectasis, are quite common."

These remarks are the outcome of clinical observation, extended over dozens of years amongst patients of all ages. What I have opportunities to see weekly is, as follows:—An adult, mostly a man, appears with a complaint not connected with his lungs and is examined. Another turns up with a tale of woe. He has been examined by a physician and told that his lungs are affected, and unless he goes to Colorado at once, he must die. They never knew their lungs were affected; they have neither cough nor expectoration; their chests are asymmetrical; there is flattening on one side, depression of an apex, diminished respiration over the corresponding part of a lung, slight or marked bronchophony, slight bronchial expiration, or thoroughly pronounced bronchial respiration, but no râle, no history of a cough, of expectoration or of a lung disease as long as they remember. They are often persons in middle life, sometimes well advanced in years. When other cases are seen in adolescents or those out of their teens, an intellectual mother remembers he or she had a pneumonia, a bronchitis, a lung fever, or a long ill-defined feverish disease, when an infant or young child. Not infrequently the case was a very protracted one, and many fevers would follow one another. In other cases there is no history except that which is indelibly inscribed in their lungs. Adults with the lesions I described are numerous. I feel certain that amongst four thousand office patients, I meet at least fifty such a year. The majority are adults; their history dates back to infancy. Others are children with the same local lesion but a more distinct record. A previous illness is remembered; in many cases the diagnosis was not made.

What I aim at is that these cases should be appreciated at their full but no exorbitant value. While a great many are the results of a complication of intrathoracic diseases, there are many that run an independent course in the connective tissue either of the bronchial walls or the trabecular or interalveolar septa. There will be plenty of opportunities to verify my experience of a life time on the part of those who are not wedded to

the thought that the symptoms described by me are invariably due either to tuberculosis or to pleuritis.

SYMPTOMATOLOGY AND DIAGNOSIS.

W. V. Leube, in his "Specielle Diagnose der innern Krankheiten," Fifth Edition, Vol. I., p. 138, has the following remarks:—"The diagnosis of interstitial pneumonia is almost always of very little clinical importance. It mostly serves only to complete that of other pulmonary diseases. It accompanies the various inflammations of the respiratory organs, chronic bronchitis and pleuritis, the suppurating, gangrenous and caseous processes and neoplasms, and rarely the croupous and catarrhal processes which affect the surface of the alveoli only. A greater importance belongs to interstitial pneumonia when it follows the inhalations of metallic and other dusts and is connected with syphilis."

Now, what I have tried to suggest or to communicate, is the much neglected fact that so-called interstitial pneumonia, or what I should prefer to call it, pulmonary hyperplasia with secondary cirrhosis, is a frequent and frequently independent disease. Moreover, that the full recovery from it, at least as far as the life and comparative health of the patient are concerned, is by no means an uncommon occurrence; that, indeed, a certain measure of pulmonary cirrhosis is not an obstacle to comfort and activity.*

The diagnosis of that independent form has its difficulties, less when it appears in its acute than when in its subacute form. Its duration is uncertain; it lasts from a week to months. The temperature is high only in acute attacks; it is mostly moderate, with its morning remissions, rarely with intermissions. An uncomplicated croupous pneumonia undergoes a more or less typical resolution, after six or nine days, rarely after three; the catarrhal pneumonia requires a very much longer time, but its diagnosis—from its incipency in bronchitis, its mostly bilateral and posterior location—is generally easier than that of some cases of lobar pneumonia. We all know that the latter is frequently suspected—on account of subjective and objective symptoms—but not proven by auscultation and percussion. Not uncommonly bronchial respiration is not ascertained before the fourth or fifth day. In not

*A few cases of the past few weeks were read, but are not printed with this paper.

a small number of such cases I have noticed that they would run a very slow course, that it would take many weeks before the lungs became normal or nearly so. In many of them you will find that it is the upper lobe that exhibits these symptoms and this course. As I have paid attention to these conditions two score of years, I have met with a great many cases that would finally get well, apparently, but there would remain: some dullness and diminished or bronchial respiration. What does that mean? It means that the case was either from the beginning an interstitial pneumonia, or that it was a complication of the croupous and interstitial forms. More! Such cases with retarded diagnosis and retarded—partial—recoveries are the very ones which have the tendency to relapse. When a child has a number of pneumonias in the course of its infancy and childhood, having been apparently well in the intervals, an attentive observer of the well child will mostly find the physical signs of interstitial induration. It is true the complication of the two varieties is one of degrees.

Uncomplicated croupous pneumonia is a surface inflammation. It does not result in induration. There are only few, if there be any, that last months, do not undergo connective tissue hyperplasia and still get well. But it should, on the other hand, be remembered that a recent cell proliferation and fibres that are not quite hardened may undergo absorption, though they be not syphilitic.

The diagnosis from pleuritis may become difficult; that of the latter is not always so easy as those may believe who always look for dullness or flatness, for local pain, for friction sound, and rely on the result of a premature or a timely puncture. Interstitial pneumonia, when independent, is mostly in an upper lobe, pleuritis more frequently over a lower, or all over. When serum or pus make their appearance early, the diagnosis is easy; not to speak of those very bad, but fortunately rare cases in which the diaphragmatic exudation results in compression of the ascending cava, in congestion and speedy hypertrophy of the liver, and in dropsy of the lower half of the body. The diagnosis of an early complication of pleuritis and interstitial pneumonia may easily be missed at first; later, when the symptoms of pulmonary alteration become more evident, it is again, in interstitial pneumonia, the upper part that is most affected. The diagnosis may sometimes become more difficult on account of the deformities follow-

ing either; still the flattening of the surface in interstitial pneumonia is mostly referable to the chest wall, that means principally the ribs, while pleuritis is apt to result in atrophy of the muscles of the chest and the shoulder, with or without pain. This difference may mislead, however. But there can be very few cases only, in which, after a long time, the location of the symptoms in the upper (mostly right) lobe in interstitial pneumonia, and of those of pleuritis, friction sound included, mostly over the lower, will not lead to a correct diagnosis.

Tuberculosis is mostly found in the upper lobe, even in the apex, mostly in the right, but there are few cases in which the left is not also infected. Interstitial pneumonia is often found in the upper right lobe only. In the child tuberculosis is apt to spread more generally than in the adult over all the lobes; indeed, its deposits are frequently found in the lower lobes. Tubercular pleurisy spreads soon over the whole pleura of one side. I find it seldom bilateral. Though it be isolated, and not the result of general tuberculosis, it soon gives rise to friction sounds and a very extensive, though not very marked, dullness. Chronic tuberculosis of the lungs is not rarely complicated with laryngitis (less so with enteritis); that is not so with interstitial pneumonia. Tuberculosis is always attended by râles and by cough; in later periods the expectoration does not become fetid. As a rule, interstitial pneumonia is not. I have often been impressed with the suspicion that the observations of apex tuberculosis, not confirmed by the finding of bacilli, were mistaken; that they were in fact local interstitial pneumonias, which finally got practically well, with induration and retraction. Besides, many cases of tuberculosis go hand in hand with an interstitial process and will get well the more readily the more they are connected with interstitial proliferation. Many of you will remember that the action of Koch's tuberculin was believed to consist in the rapid new formation of connective tissue, which was expected to surround and hide the bacilli, and thus to render them innocuous.

Altogether we may say that capillary bronchitis and lobar pneumonia have their symptoms below and behind, tuberculosis and interstitial pneumonia above, and mostly in front, pleuritis with effusion below and mostly behind, and pleuritis with effusion sometimes, and tubercular pleuritis always, both above and below.

Atelectasis in the infant may persist, rarely by itself, but is usually followed by inflammatory processes, or by emphysema.

Two cases of small children, whose asthmatic attacks dated from the earliest infancy, made me connect the latter with the known history of atelectasis of the first weeks after birth. Compression of the lungs by persistent pleural effusion, which is finally absorbed in the same degree in which the flexible chest adapts itself to the smaller compass of the enclosed viscus, we all see. It has its own well-diagnosed history.

Percussion.—Over the retracted apex and indurated lung there is dullness, and more or less resistance to the percussing finger. Induration of the lower lobe allows the diaphragm to ascend. The liver dullness extends above its normal line, and remains stationary during respiration, whenever the lung is tightly adhering to the chest wall. Secondary emphysema and bronchiectasis and the cavities of fibroid phthisis yield their well-known physical signs.

Auscultation.—The respiration is vesicular, strongly puerile in the young; in complications with bronchitis there may be râles; for short periods this complication is frequent. It disappears and reappears in acute cases, is seldom met in the chronic. After a while the respiratory murmur becomes feeble, *pari passu* with the development of the connective tissue hyperplasia. When atrophy begins, and sometimes before that time, the respiration, mostly expiration, becomes bronchial. This symptom appears late in sub-acute or chronic cases, but it lasts, usually forever. It is preceded by bronchophony. There are few râles, or none, in the beginning; none in those instances which remain unchanged, more or less local, and do not degenerate into fibrous phthisis, or are not complicated with emphysema or asthma. Sometimes auscultation, sometimes percussion is more characteristic of the solidification and retraction. In those degenerated cases which are described in all the text-books, râles of every description, the symptoms of cavities, copious expectoration of serous, mucous, purulent, sanguineous, or fetid sputa become evident. They are well known, but not observed in the frequent, comparatively mild cases which are the subjects of this communication. Excuse me for again emphasizing that I speak of the latter, very frequent, and often overlooked class.

In a great many of my cases I find the inspiration interrupted, in installments as it were ("saccadée"). This latter symptom belongs by no means to pleural adhesion alone.

Cough.—I wish to be emphatic, though my assertion may ap-

pear to be overdrawn. There is, in these cases of mine, no cough. Acute cases run rarely without some bronchial irritation, but even in this class there are many that do not cough. When there are rational symptoms and the diagnosis of pneumonia, but little cough, it means interstitial pneumonia. When the case is old, and retraction established again, there is no cough. The authors who speak of cough as a frequent and harassing symptom, or as an early symptom, who describe a dry, or moist cough, and a copious, sanguineous, or fetid expectoration, have seen, or remembered, only those cases in which there was an early intense complication in which the latter played the principal part, or the secondary processes of fibrous degeneration.

The Heart and Blood Vessels are affected in proportion to the amount and duration of the induration and retraction. Considerable atrophy of the tissue implies compression and disappearance of capillaries, incompetent circulation, cyanosis, and dilatation and hypertrophy of the right ventricle, with accentuation of the second pulmonary sound. When the upper right lobe is thoroughly affected, the heart may be drawn up and to the right; and the heart and the large blood vessels are more than normally uncovered, and accessible to percussion. That is why the diagnosis of hypertrophy of the heart should be asserted with some mental reservation, exactly as in the cases of rachitical deformity of the chest, when the flattened side of the narrowed thorax conveys the impression of a hypertrophied heart, merely because it is more extensively in contact with the chest wall. In a similar condition is the heart, when it is drawn to the left by the cirrhotic condition of the left lung. But there are more cases in which cirrhosis, being local, has no such severe result, and the described alterations are but partially developed. The majority of such patients live a fairly comfortable life; they breathe with less than their original lung area, that is all. Fortunately all of us have more than is absolutely required. In all of these cases, even the mildest, the heart sounds are transmitted to a great distance as they are in every form of solidification of the neighboring tissue.

Temperature.—It may be high in acute cases, and remain so for weeks; in them bronchial respiration may appear relatively early, and nutrition may suffer quite badly. In most instances high temperatures do not persist long. Week after week, with remissions in the morning, 101 or 102° F., may be reached in the afternoon. These are the cases in which either an infectious

fever, such as typhoid or tuberculosis, may be feared, or intestinal autoinfection, with its long duration, occasional erythema, frequent indicanuria, and toxic nephritis may be diagnosticated. The latter is more easily eliminated than the former, *i.e.*, typhoid, in which the recognition of the bacilli is either uncertain or impossible. When the induration is fully established, there is no temperature. I know patients of this kind, who, with all their symptoms of local pulmonary cirrhosis, have not been aware of any disturbance these twenty-five years.

Deformities of the Chest are observed whenever the induration is sufficiently large. They are frequent because the patients are mostly infants and young children with flexible ribs. The apex is retracted, the upper anterior chest flattened. The ribs are close to one another; in Da Costa's experience, who evidently observed adults with complications, the deformity was most often seen over the lower lobes. The vertebræ may be more or less deviating, the scapula of the affected side lower and standing out from the ribs. The circumference of the diseased side is diminished. All this takes place in serious cases. When the upper lobe, the left, or mostly the right, is alone affected, the deformity is accordingly small.

TREATMENT.—The vast majority of cases begin and run their full course in infancy and early childhood. That cannot be repeated too often, for all our text-books refer to adults and to the unfavorable terminations of the disease; and some of the numberless pediatric text-books follow their lead in the most conscientious neglect of observable facts and in treating the young and small as mere miniatures of the old and big. That is why, if there be preventives, they should be resorted to in infancy and childhood. The best preventive against the diseases of the respiratory organs is protection against infections and against colds; that means strengthening of all the integuments, both mucous and epidermic, and mainly the cutaneous, and thereby the general circulation and its innervation. Good air, plenty of good food. A boy of twelve years should not work in a coal mine at four cents an hour, and the four cents withheld from him and his starving family on account of a debt contracted by his father who was killed in the same coal mine in the employment of the same company, in what we call a Christian country. It is not good for the boy. Perhaps you could convince the employers and the commonwealth of that fact, if more of you doctors would go "into

politics." The best means of protecting the child against the influence of sudden exposures and changes of temperature is to get him used to cold water. Begin to wash the well baby when about a year old, after his warm bath, with water of 70, 65, 60 degrees and rub him well until he is dry and thoroughly warm. Diminish that temperature when he is older. Be guided by his strength and weight and previous habits in selecting the treatment. There was a gentleman who lately, before the Association of German Naturalists and Physicians, proved to his satisfaction that exposing children to cold water gives them adenoids and generally poor health. He gives you figures too—60 cases I believe—and figures prove everything to a person who knows how to handle them. In our houses and in our streets, infants and children are more exposed to draughts and the bad influences of infections and of registers, furnaces and sewer manholes than grown up people. Cold draughts creep along the floors of the rooms, just as the dry and by no means unpolluted air of our furnaces, with its smoke and carbonic acid and sulphurous acid, is at the exact height of their noses. It is fortunate, however, that most of the virulent microbes swept into the sewers from dwellings and hospitals find their graves amongst the saprophytes of putrefaction.

The mention of hospitals reminds me of a preventive of a negative nature. Those of you who control babies' hospitals will do well to remove patients, as soon as the recovery from a disease for which they were admitted is accomplished. The communicability of lobar pneumonia from one bed to another is, I hope, an established fact; and the frequency of enteritis in every baby ward is a common source of pneumonia. It is true that the latter form, so caused, is almost exclusively lobular. But both the lobar and the lobular variety may give rise to interstitial complication. When this is once started, relapses are frequent, one may say almost certain. Besides, the baby in a hospital cannot have sufficient exercise. It is in its crib or on the floor, with insufficient muscular action and unstimulated circulation. Hypostasis, like ill nutrition, is the result.

Is there a way of fortifying anemic, puny, undersized and underweight infants and children, beyond attending to their hygiene? Their diet should not consist of unmixed and unimproved cow's milk too long. Its tendency to produce dyspeptones and its lack of iron contributes to the development of rickets and of anemia. Animal food and cereals are indispensable.

Medicinally also, we may do a great deal. Our tissue builders are too often neglected. Arsenous acid, a milligram, more or less, daily may be given in small doses after meals, plentifully diluted, for months in succession; phosphorus acts in the same way and never gives rise, when administered medicinally, to any symptoms of poisoning. A baby of a year may take ten drops of the elixir of the pharmacopœia three times a day for three months in succession. Those children of five or seven years who do not thrive on that treatment and on food which contains iron enough, should be suspected of parasyphilis; their fathers' histories should be scanned and not too easily allowed the benefit of any doubt. For these children mercury, with or without iodides or iron, will often accomplish what diet and arsenic and phosphorus were unable to do. Quinin has not satisfied me. In fact dozens of years ago I gave it up in these cases as not fulfilling any rational indication. When the heart muscle is feeble, together with all the rest, those of you who believe in medicines as I do will find that the equivalent of a grain of digitalis given daily, for several months in succession, in refracted doses, will act very favorably on the myocardium of a baby a year old, and by improving circulation will nourish the heart and the rest of the body. Those of you who do not will do well to be converted.

When the disease is acute, subacute, independent or complicated, it requires attention to circulation and nutrition, rarely to temperature. It has appeared to me that frequent and protracted warm bathing, 95° to 90°, had a still better effect in this form than in any other. In other respects the dietetic and medicinal treatment is like that which you would employ in other varieties of pneumonia, with one exception. Do not forget that recent cell proliferation and the recently formed connective tissue are absorbable and should be met by treatment. Iodin should be given early; no matter whether you select or are compelled to select, the potassium or sodium salt, iodipin or hydriodic acid. We should not wait too long before beginning that treatment. Organized tissue, unless it be the result of secondary or tertiary syphilis, is no longer influenced by iodids. Treatment should be continued a long time, and may be intermitted and resumed. There may come a time for iodid of iron, when there is anemia and no longer any elevation of temperature.

Chronic dormant cases require gymnastics of the chest muscles but only under the direction of a medical person who knows

how to appreciate the possibilities of a strained heart and the danger of relapses. I am yet to see the owner of a professed gymnasium that knows enough or cares enough. I have seen plenty of cases recurring after over zealous gymnastic teaching. A crippled lung must not run in an Olympic race.

As in the cases I speak of—I repeat, the vast majority—there is no cough and no expectoration; there is no indication except the attention to the general health—good food and clothing, cold water, no overwork, outdoor life, an equable climate, for the stronger an altitude of from 1,200 to 2,500 feet, for the feeble the South, the Riviera or Montreux, Cannes, or Tangiers. That is, for those who can afford it. The poor will fare according to the state of civilization and the sense of responsibility prevalent in the commonwealth. Both are low. If the money strenuously squandered by this Republic on wars outside and frauds inside were spent on physical and mental schooling, in city improvements, on sanitation for the tubercular and the weaklings, on the saving of children condemned to subterranean labor, on the rebuilding of our murdered forests, there would be an eternal Christmas on earth, mankind nearer its destination, and this Republic the feast of the old continent's hungry eyes. There would at last be "glory to God in the highest, and on earth peace, and good will toward men." I repeat ladies and gentlemen, it is time that more of you doctors and particularly you family physicians and pediatricists, should "go into politics."

In some young, in too many of the adult, the further development of peribronchitis and interstitial pneumonia may be that into emphysema, asthma, bronchiectasis, caseous degeneration, abscess, gangrene, cavities, and death. These sad themes are elaborated in our text-books. Your Tyson, Anders, Osler and all the rest have instructive chapters on these subjects. It need not always be death even in what appears to belong to the worst cases. I discharged a few months ago a colored girl of four years that entered the hospital with the history of a long continued interstitial and lobar pneumonia. She was admitted with fever, a big cavity in her right lung, constant cough and copious bloody, and purulent, extremely foul expectoration. The cavity was at a distance of more than 2 cm. from the chest wall, but so dense was the gray, hard pulmonary tissue, that after a resection of a rib I used the knife, not the cautery, to open the abscess cavity, and lost not more than 4 c.cm. of blood during the whole procedure. She

was irrigated, treated with arsenic and iodids, and got well, with lung enough left to keep her comfortable under favorable circumstances.

In emphysema and asthma, in spite of the auscultatory difficulties, the differences in the amount of air entering the lungs and the slight changes of the percussion note discernible to a practiced ear, speak of previous interstitial inflammation, thickening or retraction as the case may be. These cases are frequently benefited by iodids, not alone on account of their influence on the heart and blood vessels, but of their powers as absorbents.

General Infantile Atrophy and Its Treatment with Artificial Serum.—Vargas (*Revista Med. de Bogota*, Vol. XXIII., 258) has for years been treating children under two years of age with general atrophy by means of injections of a 1 per cent. solution of sodium chlorid or of magnesium and sodium sulphate. This treatment entails a rapid cure in the benign form. The grave form is accompanied by intestinal lesions which render recovery a rare exception. He illustrates one case in which a child two years old looked almost like a mummy before treatment, but gained 3 kilograms in weight and 3 cm. in length by the twentieth day after the subcutaneous injections of 100 c.c. of artificial serum were instituted, repeated night and morning. In thirty minutes after the first injection the arterial tension had increased and the pulse risen from 96 to 125, while the body warmth increased .5° C.—*International Medical Magazine*.

Strangulated Hernia at Twenty-seven Days of Age.—Dr. L. W. B. Reed (*Medical News*) described a case of strangulated hernia in a child of twenty-seven days, followed by successful operation and recovery. This is the youngest case on record. There have been over 100 cases of children under one year of age reported for operation for strangulated hernia, and a prognosis of the operation depends on the length of time that the strangulation has been allowed to continue and on the damage that has been done to the tissues by taxis. No operator need be afraid to take these cases in the ordinary surgical way, and no physician is justified in delaying recourse to surgery until the prognosis is bad.

A CASE OF ACHONDROPLASIA (MICROMELIA).*

BY CHARLES HERRMAN, M.D.,

New York.

Very few cases of this affection have been reported in this country. Of 5 genuine cases mentioned by Morse¹ in a recent article on this subject, 4 were still-born or died shortly after birth. Only 1 case, that of Safford, was four-and-a-half years old.

However, the cases are certainly not so rare as these figures would seem to indicate. Since I have paid attention to this subject, I have seen 2 other typical cases. One a girl of about eighteen, the other a woman of forty. As Marie² very well says the cases are not recognized, because the condition is not known, being usually diagnosed as rachitis.

As to the name best applied to this condition, achondroplasia was first given to it by Parrot in 1878; chondrodystrophia fetalis by Kaufmann in 1892. As Kassowitz³ shows, in a recent article, both of these terms are objectionable. He proposes the name micromelia, which, though it only indicates the principal clinical feature, namely, the short extremities, is free from the objections urged against the other names.

HISTORY.—The case which I wish to report is that of a boy fifteen years old. The parents are Russians; the child was born in Russia. The family history is negative. No similar case has occurred in any branch of the family. The mother has had nine children, of these, four died in infancy. She has had no miscarriages. Four daughters are living, all in good health, physically and mentally normal. Two are married and have healthy children.

The birth of the patient was normal and easy. He was given the breast for two weeks and it was then necessary to place him in charge of another woman, by whom he was artificially fed. The child returned at ten months of age in very poor condition. At that time the mother noticed that the head was large and the extremities short.

The first tooth appeared at nine months. He could sit up at

* Presented before the Section on Pediatrics, the New York Academy of Medicine, November 13, 1902.

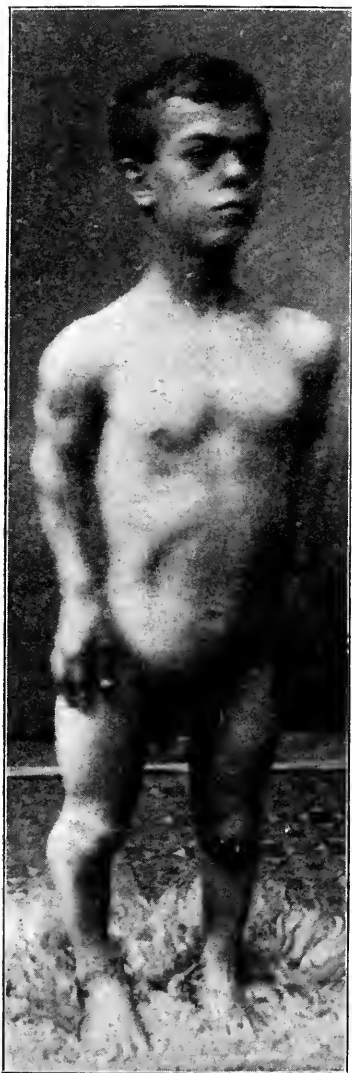


FIG. I.—ANTERIOR VIEW, SHOWING DEPRESSED ROOT OF NOSE, SHORT EXTREMITIES, PECULIAR ARTICULATION AT THE KNEE, AND WELL-DEVELOPED GENITALS.

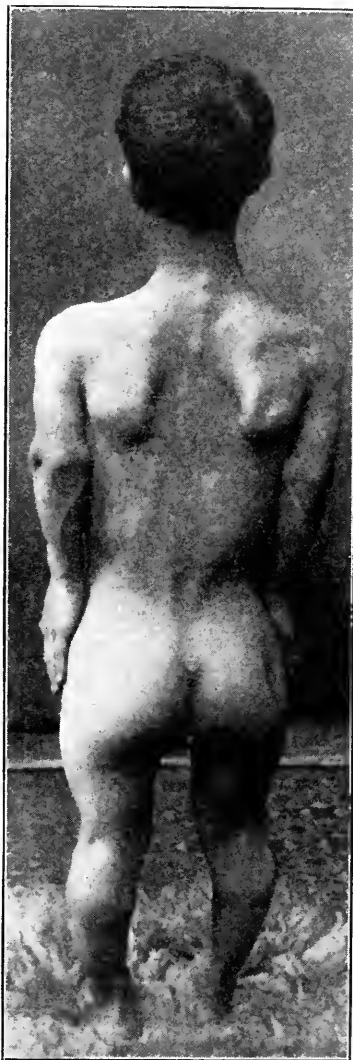


FIG. II.—POSTERIOR VIEW, SHOWING LARGE HEAD, LOW SHOULDERS, NORMAL SIZE OF TRUNK, SHORT SCAPULÆ, LORDOSIS IN THE LOWER LUMBAR REGION, AND MUSCULAR LEGS.

five years; stand at six years, and walk alone at seven years. He began to talk distinctly and intelligently at seven years.

EXAMINATION.—On examining the patient we are at once struck by the marked disproportion between the different parts of the body. The head is relatively large; the size of the trunk nearly normal; the extremities very short. His weight is sixty pounds, which corresponds to that of the average boy of nine years. (Figs. I. and II.)

His measurements are:

Height.....	117	Cm.
Head (occipitofrontal circumference).....	54.5	"
Upper extremity (from acromion process to tip of middle finger).....	45.0	"
Upper-arm.....	15.5	"
Fore-arm.....	17.0	"
Hand.....	14.5	"
Lower extremity (from anterosuperior spine to sole).....	53.0	"
Femur.....	22.0	"
Tibia.....	25.0	"
Chest circumference.....	69.0	"
Neck.....	29.0	"
Abdomen.....	58.0	"
Vertex to umbilicus.....	60.0	"

Comparing these measurements with those of the average boy at various ages, his height is equal to that of a boy of seven years; his trunk is equal to that of a boy of thirteen years; his head is equal to that of a boy of fourteen years; his extremities are equal to those of a boy of five years. (Fig. III.)

Examining the various parts of the body, we note first, that the bones of the skull are well developed and that the root of the nose is depressed. In this case the palate is not markedly narrow and high arched.

The intelligence is retarded. Though the patient has been going to school for about seven years, he is only in the third primary class. However, in some other respects he is more advanced. He chooses as his companions boys of his own age rather than those of his own size. For some things his memory is remarkably good.

The chest is well formed, there are no rachitic changes in the clavicle, sternum, or ribs. The shoulders are low. Posteriorly, we notice that the scapulæ are comparatively small. In the lower lumbar region there is a marked lordosis; the sacrum being thrown upward and backward. The thoracic and abdominal viscera present nothing abnormal.

The upper extremities are very short. Normally, the fingers reach at least to the middle of the thigh. In this case only to the great trochanter. The shortening of the extremity is more at the expense of the upper arm than of the forearm, the former being somewhat shorter than the latter, reversing the usual relation.

The enlarged ends of the bones and the muscularity of the limb give it a peculiar, knotted appearance.

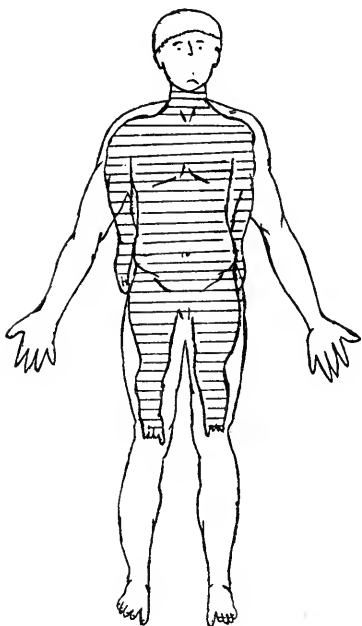


FIG. III.—OUTLINE OF CASE OF ACHONDROPLASIA AS COMPARED WITH THAT OF NORMAL BOY OF SAME AGE (15 YEARS).



FIG. IV.—THE HAND, SHOWING THE FINGERS OF NEARLY EQUAL LENGTH, THE DISTAL PHALANGES DIVERGING FROM EACH OTHER, GIVING THE "TRIDENT" FORM.

In many cases there is a tendency to hold the arms away from the body. This is principally due to the fact that the head of the humerus is large and the glenoid cavity not fully developed, so that the head of the humerus does not fit accurately into it.

The large size of the olecranon process prevents full extension of the arm at the elbow, and complete supination of the hand.

The hand (Fig. IV.) is somewhat smaller than normal but large compared to the rest of the extremity. Two peculiarities are to be noted, first, the fingers are nearly of equal length, second, there is a tendency for the distal phalanges to diverge from each

other, a peculiarity to which the French have given the very appropriate name, "trident" form.

The radiograph of the hand (Fig. V.) shows that the metacarpal bones are short as compared to the phalanges, and that their heads are large. Here, as in the rest of the extremity it is the proximal portion which is chiefly involved.

The genitals are well developed. The testicles descended; pubic hair abundant.

The lower extremities are short and muscular. Here also the usual relation is reversed, the femur being somewhat shorter than the tibia. The rather marked curvature of the legs is entirely lateral, and is due, primarily, to the peculiar articulation at the knee joint. The radiograph (Fig. VI.) shows that the



FIG. V.—RADIOGRAPH OF HAND, SHOWING THE SHORT METACARPAL BONES WITH LARGE HEADS AND THE EPIPHYSES OF THE PHALANGES STILL UNUNITED WITH THE DIAPHYSES.

articulating surface of the tibia is very broad and that the head of the fibula is so high that it also enters into the articulation of the knee joint. It is probable that the divergence of the distal phalanges of the fingers is due to a similar peculiarity in their articulation.

It is interesting to note that in the German "dackshund" with his long, large trunk and very short legs, we have the bending of the legs due to a similar change in the articulation at the knee. I have been able to verify this in two instances.

Similarly to the condition in the upper extremity, the head of the femur is too large, and the acetabulum not fully developed. Kassowitz has recently called attention to this fact and to its possible relation to cases of congenital dislocation of the hip.

THE PATHOLOGY of this condition has been chiefly studied in the fetus. The differentiation of the various forms of "chondrodystrophia fetalis" is still a matter of discussion. However, this much may be said that, as far as the growth of the bones of the extremities is concerned, the principal trouble lies in the zone between the epiphysis and the diaphysis, where normally, growth takes place. In micromelia this process is retarded or lacking. The cartilage cells, instead of being arranged in a series of columns, are irregularly grouped in masses. The lesion dates back to the third to sixth month of fetal life.

The bones of the skull, the clavicle, the sternum and the ribs are not involved. The periosteal growth is normal.

It may be questioned whether this is solely a disease of the bones. The fact that the intelligence is almost always affected, and that the genitals are often not fully developed would seem to indicate that this is the general, rather than a purely local, affec-

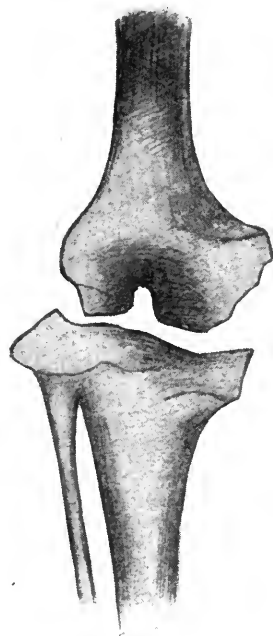


FIG. VI.—RADIOGRAPH OF THE KNEE (AFTER MARIE), SHOWING THE BROAD ARTICULATING SURFACE OF THE TIBIA, AND THE HEAD OF THE FIBULA FORMING PART OF THE ARTICULATING SURFACE.

tion. Further investigation will be needed to clear up this point. Thus far no lesion of the thyroid gland has been found.

Although there are a number of conditions which have a fetal chondrodystrophy in common it is better to separate, at least for clinical purposes, three forms. First, fetal rachitis; second, fetal myxedema; third, micromelia. The use of these terms, instead of the indiscriminate application of the term fetal rachitis to all, will prevent much confusion.

It is not impossible, however, for the same patient to present the characteristics of micromelia and at the same time some of the symptoms of rachitis or myxedema. The three conditions have some points of resemblance, but clinically the cases of micromelia form a distinct class with typical manifestations.

PROGNOSIS.—

Many of the cases are still-born or die short-



FIG. VII.—RADIOGRAPH OF THE ARM, SHOWING THE SHORT HUMERUS AND THE MARKED TUBERCLE FOR THE INSERTION OF THE DELTOID.

ly after birth. It is for this reason that very few have been reported in full grown children. However, if they outlive infancy, their vitality seems to increase with age. Cases have been described in

adults of fifty to sixty years. In two instances they were performers in a circus.

TREATMENT.—In all cases of stunted growth, one naturally tries thyroid extract. Most of the cases of micromelia treated in this way have showed no marked improvement. In one instance, however, the patient grew 5 cm. in six months. This lack of success is not to be wondered at, when we remember that at the autopsy no lesion of the thyroid has been found, and that the patients present none of the characteristic symptoms of myxedema.

With regard to the surgical treatment of the curvature of the legs, this patient was operated upon some time ago without success. This is not surprising in view of the fact that, as before mentioned, the bending is due primarily to the peculiar articulation at the knee and only slightly to a curvature in the shaft of the bone.

LITERATURE.

1. Morse, *ARCHIVES OF PEDIATRICS*, 1902, Vol. VIII., p. 561, gives a complete bibliography.

Recently articles have been written or cases reported by :

2. Marie. *Presse Médicale*, 1900, Vol. LVI., p. 17.
3. Kassowitz. *Wiener Med. Woch.*, 1902, Vol. XXVIII.
4. Cestan. *Nouv. Icon de la Salpêtrière*, 1901.
5. Apert. *Nouv. Icon de la Salpêtrière*, 1901.
6. Comby. *Archiv. de Méd. des Enfants*, 1902, Vol. VIII, p. 473.

New Treatment for Parotiditis.—From the benign course which this disease usually follows has arisen a somewhat indifferent mental attitude as to its treatment, yet when its possible complications are taken into consideration, an effective therapeutic measure for its control must needs be welcome to all physicians. E. Grande (*Gazz. degli Osped.*, August 10, 1902) offers a valuable suggestion in his adaptation of guaiacol ointment to the treatment of the disease. In a series of 12 cases he has had only good results from the use of the remedy, pain and swelling disappearing after two or three applications, and in some instances after one. The surface irritation observed when this remedy is used in orchitis and epididymitis is absent in parotiditis. The writer uses a 5 per cent. guaiacol ointment, applying it to the entire parotid region, and covers this with carbolized cotton. A bandage is then applied with some compression. The dressing is removed within twenty-four hours and the medicament reapplied, this procedure being repeated as often as necessary. The author thinks it possible that the volatile nature of the remedy may facilitate the penetration of its antiseptic properties to the oral cavity and pharynx, thus giving it an added value in the treatment of parotiditis.—*Medical News*.

A CASE OF RHEUMATIC PURPURA.*

BY GEO. MONTAGUE SWIFT, M.D.,

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Columbia University, New York.

Minnie Dobler, eleven years of age, was admitted to St. Mary's Free Hospital for Children, March 22, 1894, from the Sheltering Arms where she had been an inmate for three weeks, and where she had been fed upon soup, stew, eggs, milk, beans, potatoes, bread, oranges and butter. At home, before going to the Sheltering Arms, the child says, she often had oranges. She had had scarlet fever. Father is, and has been, healthy. Mother died of dropsy. No member of the family has had rheumatism; no member ever had an illness like the present illness of Minnie; no bleeders in the family. The girl has not been sickly.

The matron of the Sheltering Arms reported that Minnie was taken sick as with an ordinary "cold"; she had some cough; on the third day she developed "rheumatic" pain in leg and foot. Upon admission to St. Mary's, the child's left brow was swollen and within a few hours of admission this swelling traveled across the left eyelid, nose, right eyelid to the right brow and then down the right cheek. Shortly after the swelling commenced, the same parts became purple in color, the upper eyelids being particularly swollen and blue, as though the child had received a severe blow. Purple spots were present on the right ear. The right forearm was swollen, tender and painful, no discoloration. The elbow joint did not seem to be involved, but the wrist was. The right knee was swollen, tender and painful, and also the left knee. The legs were swollen, tender and painful; there was no discoloration on lower extremities except a purple patch on the right heel; this was very painful. The edges of the gums showed an ecchymotic line, but the gums themselves had only the appearance which one expects to see, when the teeth are neglected. On the hard palate just back of the incisor teeth there was an ecchymotic swollen spot; the uvula and right tonsil were also ecchymotic. Evidently a submucous hemorrhage had taken place about the palatal arch. The tongue was coated. The general appearance of the child as to skin, hair, etc., was that of a child

* Reported to the Section on Pediatrics, the New York Academy of Medicine, November 13, 1902.

in good general condition. There were no cardiac murmurs, nor irregularity of the heart action. Coarse bronchial râles were heard. The examination of the urine was negative. Temperature $101\frac{1}{4}^{\circ}$ F. I did not see the child the first day of her admission, but the sister-in-charge said that it seemed as though one could see the swelling and the purple spots grow as one watched.

March 24th.—Swelling less, but the ecchymotic spots increased in size. Temperature, A.M., 99° ; P.M., 101° F. Joint pains were the same. We were uncertain about the diagnosis and the salicylic acid, which had been ordered, was stopped. An external evaporating lotion was applied on the painful swellings.

March 25th.—Eyelids less swollen, conjunctivæ ecchymotic. Discolored patches on the face not increased, but the ears were more discolored and swollen. Both wrists and hands were swollen, tender and painful. At the knuckles of the fingers there were purpuric patches. The ankles and feet were the same as wrists and hands. Ecchymotic spots on the outer surface of the hips. Gums swollen, tongue coated. Some blackish, tarry substance was observed in the fecal movements. Considerable loose cough. Salicylic acid was ordered.

March 26th.—The appearance of face is improving as the swelling and ecchymoses disappear. The appearance of the spots on the extremities is the same. Temperature A.M., 99° ; P.M., 101° F.

March 27th.—Less joint soreness so that the child moves easily in bed. The swelling of forearms, legs, and feet is still present; the patches of discoloration on these parts look like subcutaneous hemorrhages, not elevated, not tender; pressure has no effect; some of the spots which were present earlier have disappeared. Today there seems to be a tendency for the spots to assume a circular outline and to itch; before this the outline has been irregular. The eyelids are again swollen. Temperature 101° F.

March 28th.—The color of the patches today is more reddish, not so dark as at first. On the extremities the spots are more circular, though in places the shape is irregular. There are no spots on the trunk. The mouth is nasty. Salicylic acid continued.

March 31st.—The general condition is improved; the tongue and mouth are cleaner. There is no indication now of joint involvement; none of the heart. Temperature, 100° A.M.; 101° P.M.

The patient is delirious and the salicylic acid is stopped. The patches on the skin are now elevated and itch; on the forearms particularly, the tendency seems to be for patches—which are dark red in color and are not affected by pressure—to assume a rounded outline and to gather along the radial edge. It is most surprising to see the eruption come and go; in places where a day or two ago there appeared to be a subcutaneous hemorrhage, today there is no appearance of discoloration. In this respect the eruption is suggestive of urticaria.

April 2d.—The patient is delirious and restless, probably owing to the salicylic acid. The skin of the forehead is swollen and several round patches have appeared there. On the arms, hands, thighs, legs, and feet are large and small discrete and confluent macules, for the most part with round outlines; these itch. There is no eruption on the trunk.

April 5th.—Swelling of face disappeared. She complains of her back and there the skin—over the dorsolumbar region—is swollen and tender. The right heel is again painful and the skin over the instep swollen and purple. On the thighs are large petechial spots varying in size from a point to a silver dollar; these spots have irregular outlines and are not elevated. Temperature, 99° F. There is dullness and bronchial breathing over the lower lobe of the left lung; some cough. Pulse, 120 and regular. The patient is delirious. She has taken again, for two days, sodium salicylate, which is now stopped, and calcium chlorid grs. iii. every three hours ordered.

April 7th.—She appears better, but examination of the chest now shows that there is present some pleuritic effusion reaching to the spine of the scapula. Less eruption. Nothing abnormal about the heart. Temperature, 102° F.

April 8th.—The right knee is swollen and painful. Temperature, 102° F. Signs of pleuritic effusion still present.

April 10th.—The signs of pleuritic effusion have entirely disappeared. Entire general condition is improved. There is a large slough on the right tonsil.

April 12th.—Pain in the right shoulder. Tonsil clearing. Eruption of the skin has practically disappeared.

April 25th.—Child has been doing well. She was allowed to be up a few days ago, but her right knee became swollen and painful and more purpuric spots appeared.

May 20th.—Discharged. No recurrence of pains or eruption

Clinical Memoranda.

CONGENITAL DILATATION OF THE SMALL INTESTINE.

BY J. N. HALL, M.D.,

Professor of Medicine, the Denver and Gross College of Medicine, Denver, Col.

Many cases of enormous dilatation of the colon have been reported, especially of late years, but scant mention is to be found of the condition I describe herewith. It is so unusual that it should be placed upon record.

HISTORY.—A female infant, eleven months old, was brought to me from Fort Morgan, Col., with the statement that it suffered from extremely severe constipation. The parents and an older child were healthy. The father's brother, I learned upon careful inquiry, had been somewhat similarly affected during childhood. He went once thirteen days and once twenty-one days without a movement of the bowels. The distention of the abdomen is said to have been enormous, and the physician-in-charge stated that the heart was pushed upward two inches. As he grew to manhood he gradually improved and is now of adult age, but has never been well. His bowels need constant attention to avoid complete obstipation.

The baby in question weighed seven pounds at birth, and a little over eleven pounds in my office on arrival. The mother, an intelligent woman, stated that the child was breast-fed and took its food well. She regards it as absolutely well excepting for the constantly recurring trouble in obtaining a movement of the bowels. No normal spontaneous motion had ever been passed. The physician who delivered the child, and a second one who took charge of it several weeks later, were both excellent practitioners, and had used all the means usually adopted to procure defecation, including laxative medicines, enemata, high and low of various kinds, electrical stimulation of the bowels, and laxative articles of food. On an average a stool had been passed every one or two days, normal in size, odor, consistency and appearance. The baby thrived and grew fat, but had gradually more and more difficulty in regard to defecation. The abdomen became so distended as to cause great distress if more than a day passed without stool, and the child gradually reached the condition presented upon

arrival, that of being peevish and fretful, and even of refusing the breast for a time.

I found it well nourished, and, excepting for the protuberant abdomen, it would have passed for a normal infant upon casual examination.

The temperature was elevated to nearly 100°, the pulse 120, of good strength. Tongue clean. No appearance of especial suffering.

The abdomen was enormously distended. The heart beat in the third space, but aside from this the chest was negative. The centre of the abdomen was everywhere resonant, while around the course of the colon it was more dull. No evidence of dilated stomach, no tenderness, no rigidity. The anus appeared normal. The bladder was apparently empty, confirming the mother's statement that the urine was passed properly. None could be obtained for examination. With a good light one could see three transverse ridges across the abdomen. No waves of peristalsis could be detected.

There were no enlarged lymph nodes anywhere, no signs of rachitis, syphilis or other disease than that pertaining to the intestines.

A grave prognosis was given, and the parents were told that it was apparently a case of congenital defect in the intestines of such a nature that the tube could not empty itself. A laxative was ordered containing aloin, nux vomica and belladonna, and a high enema of soap suds recommended.

During the night I was asked to see the child, and found it dying. The distention was much more marked than at the first examination, and the transverse ridges were startlingly distinct. There were no new signs to account for the change for the worse, merely a gradually increasing weakness until the pulse ceased to beat. A small stool had been passed during the night, but no feces nor gas came away with the enema I ordered upon arrival.

AUTOPSY.—The postmortem examination was conducted by Dr. Garrett and myself seven hours after death, permission having been granted to open the abdomen only.

The great distention had crowded the diaphragm high up. The peritoneum was entirely normal. No fluid in peritoneal cavity. The abdominal contents were completely covered from view by three enormous transverse folds of small intestine corresponding to the three transverse ridges above mentioned. The

stomach was normal. The first two inches of the small intestines were about two-fifths of an inch in diameter, but it then dilated quite suddenly to a diameter of one and one-quarter to one and one-half inches and continued of this size until two inches before its entrance into the cecum. This portion was of the size of the first two inches. The appendix was sickle-shaped, but free from any signs of disease. The colon was about one inch in diameter, becoming smaller toward the rectum. This was of the usual size in such an infant. At the hepatic flexure of the colon the calibre was slightly reduced, being there about two-thirds of an inch in diameter. There was no thickening of the wall. The whole intestinal tube was irregularly dilated and contracted in spots, although the contractions were never, in the small bowel, sufficient to even approach the normal calibre of the gut.

The small intestine was distended by gas, with a little normal yellowish semi-solid fecal matter. The mucous membrane was almost velvety in appearance from the deep reddish-brown congestion, and apparently of normal thickness. No ulceration was found anywhere, and no sign of constriction here or elsewhere in the digestive tract, excepting the irregularity mentioned. The colon contained normal-looking, fairly solid, yellowish feces. No dry, impacted feces were found anywhere.

The spleen, liver, pancreas, pelvic organs, and kidneys were normal in appearance. The mesenteric lymph nodes were moderately enlarged, one of them reaching the size of a white bean. Careful search showed no evidence of malignant growth, suppuration, typhoidal ulceration, tuberculosis, syphilis or other cause for this lymph adenitis.

I feel less sure as to the conclusions to be drawn from the comparatively simple and easily established facts herewith presented. My own theory is that the child died of an intestinal autointoxication from retention of feces, and that the lymph nodes were enlarged through the irritation of the toxins. It was suggested, at the Denver Clinical and Pathological Society meeting, where I briefly mentioned the case, that the dilatation was a sequel to the constipation. We must note, however, that the child never had a spontaneous movement, and that in eleven weeks the small intestine could scarcely enlarge to the extent of three to four diameters. The analogous condition in the uncle's case, so far as we may judge from the statement of the child's father, would point rather to a family tendency to weakness in

the structure of the intestinal wall. I believe that the swollen mucosa added as much to the thickness of the wall as the absence of the muscular coat might have subtracted, for it seemed of at least the usual thickness.

I regret that I did not preserve the intestinal wall for microscopic examination. The enlarged lymph nodes, Dr. H. R. McGraw reports, showed a marked simple hyperplasia, with great congestion and decided pigmentation. He infers that this pigmentation was due to hemoglobin derived from the breaking up of red blood cells by the intestinal toxins.

Seventy-one Cases of Tetany, with Six Pathological Examinations.—Dr. R. A. Peters (*Roussky Vrach*, September 14, 1902) reports a series of cases of tetanus, of which 67 per cent. were in boys, and 33 per cent. in girls. There were eight deaths, one of influenza followed by pneumonia, one of whooping cough followed by pneumonia, one of scarlatina followed by pneumonia, and one of a pneumonia of uncertain origin, one of nephritis and eclampsia, and one of exhaustion. In 6 cases autopsies were performed. The symptoms which were observed in all the cases, and which were used as tests in classing the cases as tetany, were: (1) Contraction of the hands and of the feet. (2) Chvostek's symptom: Percussion with a hammer over the branches of the facial nerves produces a contraction of the facial muscles. (3) Erb's symptom: Increased electroirritability in the peripheral nerves. (4) Trousseau's symptom: Pressure upon the tendon of the biceps produces contractions in the muscles of the upper extremity that are quiet at the time of testing, or the contractions are increased in those muscles that are in activity at the time. (5) A sign which the author calls "jumping-jack" symptom. It consists of motions of the lower extremities resembling those that result from the pulling of a string of a paper "jumping-jack," when the galvanic current is applied to the portions of the spine that correspond to the lumbar and cervical enlargements, the anode being placed on the chest, the cathode on the spine. The strength of the current was from three to four milliamperes. Erb's and Chvostek's symptoms were not found so constantly as the other signs, and were not pathognomonic. The common opinion is that tetany is a functional disease, but the author's clinical observations convince him that it is a disease due to lesions of the roots of the nerves that control the muscles concerned. All the symptoms may be explained by such lesions. The lower cervical and the upper lumbar roots are those most frequently affected, but there are exceptions to this rule. The probable seat of the lesion is in the points of exit from the spinal canal, where the nerve roots are united into distinct functional units.—*New York Medical Journal*.

A CASE OF DOUBLE MITRAL DISEASE, PROBABLY CONGENITAL.*

BY LEO BERND, M.D.,
Philadelphia, Pa.

CASE.—J. F., aged two and one half years. His birth was normal.

FAMILY HISTORY.—Father is healthy; all the other children are healthy; the mother has had several attacks of articular rheumatism and suffered especially during her pregnancy with the child.

PREVIOUS HISTORY.—The mother noticed when she first washed the child that there was a prominence of the chest. The child's color has always been dusky. The child was breast-fed until nearly a year old; he now gets regular table food.

PRESENT HISTORY.—The chest bulges; the child has a cough, which is worse when lying down. He sweats on the slightest exertion, keeps his mouth open all the time, and is very weak. The bowels are regular.

PHYSICAL EXAMINATION.—Height, thirty inches. Head, fontanel nearly closed. Face, adenoid type. Mouth, open; the bridge of nose is broadened. Nose, hypertrophy of the pharyngeal tonsils. Faucial tonsils are not enlarged. Eyes, negative. Neck, anterior and posterior cervical glands not markedly enlarged. Sternocleidomastoid muscles stand out prominently. There are marked pulsations of both carotids and jugulars. Chest, sternum stands forth to a marked degree (keel shaped). Harrison's groove is evident. Measurement from right sternum to spine, through nipple line, nine and one-half inches. On the left side the measurement is the same. Abdomen, soft; the liver is not enlarged; the spleen is not palpable. Lungs, percussion negative. Auscultation is obscured by the cardiac sounds. Respiration, 68 to 88 per minute. Pulse, 118 to 126 per minute.

HEART.—The apex beat is in the mid-clavicular line in the fifth interspace, one-half inch in advance of the axillary fold (the significance of this may be modified by the shape of the chest.) There is a slight pulsation to the right of the sternum. On palpation a marked thrill is felt over the second interspace on

* Reported to the Philadelphia Pediatric Society, November 11, 1902.

the left side. On auscultation the first sound is strong, but not so loud as the second. The first sound is observed by a loud blowing murmur which is heard in the axilla, at the angle of the scapula, and over the whole chest to the extent of hiding the breath-sounds. Two murmurs are heard at the apex. Both second sounds are accentuated, the pulmonic being louder than the aortic. On percussion dullness extends to the right of sternum about one-quarter inch, on the left side to the apex. The nutrition is good.

BLOOD EXAMINATION.—Hemoglobin 40 per cent. Red blood cells number 4,410,000; white blood cells 14,600.

Neither Holt nor Osler reports a case of congenital double mitral disease. The diagnosis in this case was arrived at through the following considerations, in spite of the rarity of this condition. 1. The mother's illness. 2. The absence of history of any other disease. 3. The rarity of articular rheumatism in children under two years of age. 4. The child has always been delicate and cyanosed.

Examination of Mentally Deficient Children.—A nerve specialist was deputed to examine the children of Zürich in this special class. In all, 217 children were examined mostly in the presence of an adult relative. The family history showed previous trouble in 168 cases, in 12 no such information was procurable, and in the remaining 37 no hereditary taint was found. Central brain disturbance, accompanied by defective hearing, was found in 34 cases. Purely peripheral deafness was the sole cause of arrested development in 13 cases. Fourteen children showed symptoms of a myxedematous character. Their parents were advised to consult the family practitioner, and request his attention to the thyroid gland. Of the 168 cases where trouble was hereditary, there were only 13 cases where previous illness may have been a contributing cause. The hereditary taint was due to—

- (a) Alcohol, in one or more ancestors. . . . in 82 cases.
- (b) Alcohol, with psychosis or neurosis. . . “ 27 “
- (c) Alcohol, with syphilis. “ 4 “

In all, 113 cases in which alcohol was a contributing, and 82 in which it appears to be the sole agent.—*The Edinburgh Medical Journal.*

ARCHIVES OF PEDIATRICS.

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BACTERIA IN MILK.

The efforts being made to improve the milk supply of our cities and to establish standards of its purity or wholesomeness have brought out considerable information as to the bacterial content of milk and raised interesting questions as to its significance. Most of the investigations along this line have dealt only with the number of bacteria found in a cubic centimeter of a given sample of milk and such emphasis has been laid upon the numbers found, that it seems not improbable that we have learned to attach undue importance to this particular phase of the matter.

We have come to believe that a low bacterial content indicates a wholesome milk, and that a high content belongs only to milk that is unwholesome or dangerous. Prof. Conn, in the chapter of Chapin's "Theory and Practice of Infant Feeding" devoted to the bacteriology of milk makes it clear that such assumptions are not altogether warranted. It is not a new thing to us that bacteria are not all hostile or dangerous to man, but it takes an effort to accept the idea that even in milk some of them may be harmless or even beneficial. The bacteria commonly found in milk are of three varieties. (1) Those producing lactic acid fermentation. (2) Those producing albuminoid decomposition. (3) Those having no noticeable action on milk. The great number of those ordinarily met with belong to the first class and are probably not pathogenic to man. It is this class which under usual conditions multiplies rapidly in milk and is most largely responsible for the high counts made when the milk is twenty-four or forty-eight hours old. The lactic acid resulting from their growth checks the development of many other organisms in the milk and even in the intestine of man seems to have a favorable action in a similar way. Furthermore the rapid increase in number of the lactic acid bacteria tends to limit or check the growth of other varieties and in this way is not an unmixed evil.

The organisms of the second class are much rarer and fewer in number than the lactic acid bacteria. While themselves non-pathogenic to man, they may by their growth in milk produce substances which are detrimental or even poisonous. Their growth is ordinarily checked by the action of lactic acid.

In the third class are grouped many varieties of organisms for the most part harmless to man. Of pathogenic organisms the tubercle, typhoid, and diphtheria bacilli have been demonstrated in milk. Certain varieties of streptococci are found in a large percentage of ordinary samples of milk, but the question of their relations to disease is not settled. The infective agent of scarlet fever can be carried in milk, but, as its identity is unknown, it cannot enter into consideration.

We have long attributed the acute diarrheas of children to the

bacteria present in milk, but just which ones were the active agents we have not known. It may be that the discovery of the relation of the Shiga bacillus to some of these cases may lead to definite demonstration of the part played by the bacteria in milk.

The known pathogenic organisms are found in milk not infrequently, but as a rule in very small numbers. It appears, however, that it makes a great difference just which one of these pathogenic varieties gets entrance to milk, not alone by reason of their different actions in the human organism, but because one may increase and multiply in milk while another fails, or it may even be, dies out. Milk is good ground for the typhoid bacillus, but stony soil for his brother, the tubercle producer.

A few typhoid bacilli finding entrance to milk soon after the milking may mean millions to the consumer, while on the other hand it may be that the few tubercle bacilli in the milk of a tuberculous cow may be largely deprived of their powers for harm by the time the milk is used. The latter proposition suggests a possible explanation of the relatively rare infection resulting from the use of the milk of tuberculous cows.

Excluding the possible use of chemicals or other methods of preservation, the counting of the number of bacteria in the milk offered for consumption is of value in indicating, first, the care taken in the milking process to prevent contamination; secondly, the care to prevent contamination from outside sources after the milking, and thirdly, the conditions under which the milk has been kept. If no care is taken in these respects, the milk will inevitably contain great numbers of bacteria. Proper care at the milking will limit the number of organisms to a few hundred to the cubic centimeter, but if such milk be allowed to stand at summer temperature, at the end of twenty-four hours the hundreds will have grown to millions. If, on the other hand, the milk is promptly chilled and then kept at a temperature of 40° C, at the end of twenty-four hours the number of bacteria may actually be lower than at the milking-time. Carelessness at any step in handling of the milk, such as the use of infected cans or utensils, exposure to dust or dirt of any kind, uncleanness on the part of those

engaged in the process, etc., will naturally result in increasing the bacterial content of the milk. It is in this stage of the process that contamination with the most important of the pathogenic organisms, the typhoid bacillus or diphtheric bacillus, is most likely to occur. If such contamination has occurred, then the increase or decrease of these organisms will doubtless be determined, in largest part, by the temperature at which the milk is kept and the time that elapses before it is consumed.

A low bacterial count after natural milk has been kept twenty-four or forty-eight hours, must therefore mean that care has been exercised in all the several particulars indicated above. A high count under such circumstances may mean a break in any one, or two, or all of the links of the chain.

The most important questions from the standpoint of health, the presence, number and varieties of pathogenic organisms, are not answered directly in either case. The problem would be somewhat simpler, if all microorganisms inoculated into milk behaved in the same way. We might then infer that the higher the bacterial count, the greater the number of pathogenic organisms, if any be present. This, as has already been suggested in speaking of the growth of non-pathogenic forms, is not at all the case.

The low count may, however, be taken as an assurance that due care has been exercised in every step of the business and, at present, constitutes the best practicable certificate of the purity and wholesomeness of the milk in question. The high count may or may not mean a harmful contamination of the milk. Incidentally it is interesting to note the difference of views between authorities as to what number of bacteria is permissible in a good milk. The Milk Commission of the Medical Society of the County of New York allows not more than 30,000 bacteria to the cubic centimeter; Hewlett in his recently published manual suggests 1,000,000 as a practicable figure!

The next step forward in this work must be the differentiation of the varieties of bacteria commonly met with in milk, especially with relation to the frequency and numbers in which pathogenic bacteria are found.

Considerable work has been done, especially in England by Kanthack, Sladen, Delépine, Hope and others on the frequency with which tubercle bacilli may be found in the milk supply of cities. In an examination of 100 samples of country milk E. Klein (*Jour. Hygiene*, 1901, I., p. 79) found the tubercle bacillus seven times, pseudodiphtheria bacilli eight times, once the diphtheria bacillus, and once a pathogenic yeast.

This is work of the very greatest importance at the present time. The labor involved is great and the difficulties to be met seem insurmountable, but doubtless the importance which attaches to the subject will inspire the enthusiasm necessary to further advance. We have long enough rested content with counting the colonies of bacteria found in our milk. We need to know the individuals in the colony, to learn exactly where they come from, what effects their presence has upon the milk itself, and what it portends to the consumer of the milk.

A committee has been formed to secure subscriptions for the painting of a portrait of Dr. Frederick A. Packard, to be presented to the College of Physicians of Philadelphia. Subscriptions should be sent to the secretary of the committee, Dr. Alfred Stengel, 1811 Spruce Street, Philadelphia.

A Hematoma Simulating Appendicular Disease. — The closeness with which disease of the vermiform appendix may occasionally be counterfeited is well illustrated in a case reported at the recent French Congress of Surgery (*Gazette hebdomadaire de médecine et de chirurgie*, November 9th) by M. Braquehay, of Tunis. It was that of a boy who had acute pain and induration at McBurney's point, constipation, meteorism, a temperature of about 98° F., and a pulse of 112. The abdomen was opened, but no pus was found. A drainage tube was left in the incision, and a few days later a very large retroperitoneal hematoma emptied itself through the tube. It was then ascertained that the boy had been struck in the abdomen in a fight.—*New York Medical Journal*.

Bibliography.

American Edition of Nothnagel's Encyclopedia. Diphtheria, Measles, Scarlet Fever, and German Measles. Diphtheria. By Wm. P. Northrup, M.D., of New York. Measles, Scarlet Fever, and German Measles. By Professor Dr. Th. von Jürgensen. Professor of Medicine in the University of Tübingen. Edited, with additions, **by William P. Northrup, M.D.,** Professor of Pediatrics in the University and Bellevue Medical College, New York. Authorized translation from the German, under the editorial supervision of **Alfred Stengel, M.D.,** Professor of Clinical Medicine in the University of Pennsylvania. Philadelphia and London: W. B. Saunders & Co., 1902. Illustrated. Pp. 672. Price, \$5.00 net.

The present volume of Nothnagel's Encyclopedia substitutes an article on diphtheria by an American author, Dr. W. P. Northrup, for the original German contribution.

As is usual in works of this character, the opening chapters on diphtheria relate to the history, geographic distribution, modes of infection, age, sex and other etiologic factors. The bacteriology is treated of in twenty-two pages under the following sub-headings: pathogenesis, the distribution of the bacilli in the system, virulent bacilli in healthy throats, mixed infection in diphtheria, pseudodiphtheria, diphtheria toxin, pseudodiphtheria bacilli and differentiation by morphology. The author frankly states that there is confusion in the classification of the pseudodiphtheria bacilli and the problem for the present is unsolved. The question that is of the greatest interest in this connection is to know if under any circumstances not yet understood, the organisms which are generally regarded as pseudodiphtheria may develop into virulent diphtheria bacilli.

The influence of the disease on the heart, lungs, nervous system, kidneys, liver, spleen, lymph nodes, pancreas, thymus gland and other structures is detailed with minuteness. Councilman, Mallory, Pearce and Flexner are names known to all American students of diphtheria and their conclusions are accepted.

Of the actual clinical symptoms of the disease, nasal diphtheria is usually one of the most insidious. At the New York Foundling Hospital where it frequently occurs that such cases are brought in with a history of a foreign body in the nose, there will be found a thick bloody discharge, swelling of the nasal membrane and occasionally a pseudomembrane. Nasal diphtheria may run a very protracted course and the bacilli will be found for weeks after the disease has apparently terminated.

The treatment of diphtheria by antitoxin, both as a prophylactic, immunizing agent and as a specific during the course of the disease, is insisted upon as being the only means of saving life. Very little space is given to the older methods of treatment once so much in vogue.

Intubation as devised and practised by O'Dwyer is described and illustrated by photographs and x-ray pictures. This whole section is a most satisfactory exposition of the treatment of laryngeal stenosis by intubation in preference to tracheotomy.

A full bibliography completes Dr. Northrup's important contribution, which in construction and arrangement bears a critical comparison with the other articles in the volume. It is unfortunate that Dr. McCollom, of Boston, appears in all the references as McCullom.

Dr. von Jürgensen is the author of the articles on the acute exanthemata. After an introductory chapter on the infectious diseases, measles is first described. In the history of the disease Panum gave a matter-of-fact account of an epidemic of measles in the Faroe Islands which was supplemented by Hoff who was an observer of an epidemic occurring in the same islands. The results of observations made in these epidemics show that quarantine is without doubt the most reliable measure for preventing the spread of measles. The editor of this section cites Crajkowsky, Behla, Barbier and Arsamaskoff all of whom have endeavored to find the microorganism of measles.

Flindt's description of the measles enanthem is translated with full credit to its author. The American editor brackets Koplik's account of the early appearance of the buccal eruption so that comparison may be made between the clinical observations of these authorities.

The symptoms of the various forms of the disease are considered separately and the diagnosis, prognosis and treatment are as extended as is necessary. If any exception is to be taken

it is that too many cases are quoted. Hydrotherapy is regarded as the only hope in several malignant cases.

In none of the acute exanthemata does our lack of knowledge of the cause of the disease prove so disturbing a factor as in scarlatina. The American editor tacitly agrees with the foregoing paragraph by quoting Class' claim for his diplococcus without comment. The pathology of scarlatina and the symptomatology are illustrated wherever possible by clinical reports. The phenomena connected with the action of the toxin on the kidneys are carefully weighed, with the conclusion that we do not know definitely why nephritis occurs with such varying frequency in different epidemics. Two hundred and fifty pages comprise the section on scarlet fever.

Rötheln and "fourth disease" are studied in their relationship to the other exanthemata.

The therapeutics given in the translations are somewhat elaborate for an American reader but the high standard of the articles makes the volume an important one in the literature of medicine.

Microscopic Examination of Human Milk. — Friedmann (*Deutsch Med. Woch.*, January 23, 1902) has found that when nurslings are not thriving on breast milk, the microscope invariably shows a degenerated condition of the milk. Under normal conditions the fat globules are seen under the microscope to be of three sizes, small, large and medium. The medium and small ones are most numerous, and about ten to twenty of the large are found in the microscopic field with a magnifying power of 400 or 500. If the proportion of large globules is more than this, the milk is harder to digest, but if the child can accomplish it, he thrives exceptionally on this milk. When the small-sized globules predominate, the milk is poor in quality and the child usually suffers from chronic dyspepsia, especially when the globules are very small and deformed or disintegrated. The globules usually crowd close together. This examination of the milk with the microscope is sufficient for all practical purposes and affords important indications for the physician. He should adopt it as a routine measure before recommending a wet nurse. —*Journal of the American Medical Association.*

Society Reports.

SEVENTIETH ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION.—SECTION OF DISEASES OF CHILDREN.

Manchester, July 29, 30, 31, and August, 1, 1902.

HENRY ASHBY, M.D., F.R.C.P. (London), PRESIDENT.

THE VALUE OF RESPIRATORY EXERCISES IN THE NASOPHARYNGEAL LESIONS IN CHILDHOOD.

The subject was introduced by

W. ARBUTHNOT LANE, M.S., F.R.C.S.,

Who referred to previous communications he had made "on the mechanical factors that determine the development of the bones of the face," the chief being the pressure exerted by the air in its passage to and fro through the nasopharynx. The absence of this pressure, he said, produces the following changes: (*a*) narrowing of the alveolar arch; (*b*) increase in the height of the palate along the middle line; (*c*) diminution in the breadth and height of the nasal cavities; (*d*) lateral compression of the anterior nares; (*e*) habitually open mouth, with protrusion of the upper jaw; (*f*) rapid decay of the temporary teeth from lodgement and decomposition of food about the gums, and bacterial invasion of the latter; (*g*) evil consequences on gastrointestinal tract; (*h*) an inflammatory condition of the lymphatic tissue of the upper part of the pharynx, in association with the infection of the mucous membrane of the nasopharynx, which is in children the part of the body most accessible to the invasion of organisms; (*i*) interference with hearing; (*j*) associated with the lateral compression of the alveolar arch, a diminution very frequently of the length of the alveolar margin, with irregular arrangement of the teeth, and the production of open-bite from inaccurate adaptation of the teeth of the upper and lower jaws.

According to Mr. Lane all these troubles may be avoided altogether in the large majority of cases if proper measures are adopted from the first, or, if they have developed, they may be removed or very greatly diminished by proper attention to the aëration of the lungs, the ventilation of the nasopharynx, and the

proper performance of the functions of the body, though, naturally, the benefit gained varies inversely with the duration of the troubles indicated.

In the discussion which followed the reading of the paper,

SIR FELIX SEMON asked how respiratory exercises diminished an organized hypertrophy of gland tissue, and if this benefit could be obtained with adenoids, why not with large tonsils in the same way. Though no one would contest the value of respiratory exercises in their right place, he thought much mischief could be wrought, if they were improperly used.

DR. SCANES SPICER agreed with Mr. Lane in aiming at a state of affairs when there should be no need for adenoid or obstruction operations, except as a result of traumatism. He referred also to the importance of nasal obstruction from whatever cause in the production of the morbid process, the first result being a negative pressure in the nasal or nasopharyngeal parts of the respiratory tract, with consequent chronic hyperemia from the action of this constant suction on the walls, and, ultimately, hyperplasia. Subsequently, by means of tracings taken with a manometer, Marey's tambour, and kymograph he showed the abnormal fluctuations of pressure in the nose and nasopharynx arising from obstruction. To him, however, Mr. Lane seemed to draw the absolutely incomprehensible conclusion that children already hampered by serious deformities were to be allowed to be further burdened when they could easily be relieved by surgical interference. Therefore though there could be no doubt that unnecessary or inefficient adenoid operations in some hands had needed a protest, yet he thought that Mr. Lane appeared to carry it a great deal too far. He was of opinion that if there was nasal stenosis (especially if structural) breathing exercises could, and did, effect much harm, and wasted invaluable time at a most critical period of life.

DR. PETER MCBRIDE thought the theories of Mr. Lane and Dr. Spicer were probably disproved by (1) the usual absence of recurrence of adenoids after removal (2) the occurrence of small adenoids in very roomy noses.

PROF. BAGINSKY mentioned that adenoids seemed to occur as a congenital condition, and that they were found in very young infants, in whom it was impossible to explain their existence by catarrh. For these cases, and probably for those in scrofulous or

tuberculous disease he thought treatment by exercises could not be effective.

DR. H. R. HUTTON thought the mistake lay in waiting until the disease was well developed, before they took any steps to cure it. Exercises might be all very well for the well-to-do, but the poor could not carry these things through.

MR. MAYO COLLIER supported the contentions of Mr. Lane, but thought that the increase of atmospheric pressure from without was amply sufficient to account for the marked deformities of the palate and the unsightly deformities of the whole upper jaw.

DR. HARRY CAMPBELL contended that the cause of adenoids was essentially a dietetic one, the vascular and lymph supply to the pharynx being affected by want of action of the muscles of mastication, and the catarrhal diathesis being produced by fermentation of soft foods promoting dyspepsia.

THE TREATMENT OF FEEBLE MINDED CHILDREN

was the subject of a paper by

ALFRED EICHHOLZ, M.A., M.D.

The reader reviewed the factors which led to the recognition of this type of mentally-deficient children and to the framing of the act for benefiting them to the exclusion of the unimprovable imbecile on the one hand, and the lazy dullard, or merely backward on the other. He pointed out that with the assistance and advice of competent medical men in larger areas, a system of special schools has been devised, these schools being separate organizations from the ordinary schools, though for convenience built in their immediate precincts. The arrangement of these schools was then briefly referred to, and subsequently the alterations in the highest mental faculties in these feeble-minded children was considered in some detail. As a rule he said in these cases memory, initiative, attention, concentration, power of imitation are all dulled, and at the commencement may be entirely absent. But as opposed to the affections of such peculiarly human faculties, there may be a disturbance of the lower faculties including such features as self-restraint, obedience, cleanly habits, etc. Fortunately, such children, though liable to storms and out-

bursts, recognized the influence of will in others more and more, as they grew under the training, and could therefore always be easily managed by a good teacher. It is imperative, however, that discipline should not be relaxed at the limit of school age.

As regards the method of training, he preferred manual employments of all kinds to the more purely scholastic attainments, believing that the former were probably a better means of exacting obedience, cleanly habits, decency, etc., and certainly more capable of assimilation.

Dr. Eichholz then gave a number of results observed in various districts, estimating that not more than 5 per cent. of the really defective children ever become independent workers. As regards the others who could not become self-supporting he recommended that they should be put under permanent control.

DR. G. E. SHUTTLEWORTH thought the poor results in some centres might have been due to injudicious selection of cases for special instruction, and strongly deprecated the admission to special classes of children who were too imbecile on the one hand, or merely backward on the other. Further he thought it was most important that no cast-iron regulations, governmental or otherwise, should unduly restrict the curriculum of special instruction, each child being studied individually and treated appropriately.

A paper on

DEFECTIVE COORDINATION IN UTERO AS A PROBABLE FACTOR
IN THE CAUSATION OF CERTAIN CONGENITAL
MALFORMATIONS

was read by

JOHN THOMSON, M.D., F.R.C.P., EDINBURGH.

The writer said there are at least three types of congenital malformation of hollow viscera, in which the main anatomical abnormality present consists in very great muscular hypertrophy, for which no permanent organic cause is discoverable. They are as follows:—

- (1) Congenital hypertrophy of the bladder with dilatation of the ureters and renal pelvis.
- (2) Congenital hypertrophy of the colon.

(3) Congenital hypertrophy of the pylorus and stomach wall.

The points which these morbid conditions have in common are as follows:—

(a) Enormous hypertrophy of the muscular coat of a hollow organ which is known to be functionally active to some extent in utero.

(b) From the amount of hypertrophy found in cases dying soon after birth, it must have been present during intrauterine life.

(c) In none is there any evidence of a causative permanent organic obstruction.

(d) No other abnormalities are usually present, except such as may reasonably be regarded as secondary to the muscular hypertrophy.

The muscular hypertrophy being the primary factor he says two hypotheses are possible (1) a primary developmental hyperplasia. He doubts, however, whether there exists a single instance of a localized true hypertrophy of muscle primary in character. On the contrary it is practically always a proof of past over-exertion, so that more probably it is (2) a secondary hypertrophy resulting from over-exertion.

In hollow organs, said Dr. Thomson, the cause of overwork is obstruction to the onward passage of the contents, and since there is no trace of an organic cause, one must suppose that it was functional. But if a functional cause has existed, he thinks it must have been in the nature of a disturbance of the normal co-ordination, and of a violent spasmodic kind, a sort of intrauterine "developmental neurosis."

From a study of 50 cases he mentioned the following clinical facts and deductions:—

(1) The malformation being of a comparatively isolated character, it is very improbable that it is a teratological condition.

(2) The spasmodic element being prominent in the symptoms after birth, there is a probability of a similar spasm in utero.

(3) The apparent continued growth in size of the pylorus after birth, while the symptoms last, suggests the probability of a similar growth in fetal life.

(4) The gradual disappearance of the symptoms in some cases, while there is reason to believe that the anatomical condition remains unchanged, and the immediate improvement after

stretching of the pylorus in others are in favor of a functional causation.

MISCELLANEOUS CASES.

MR. ROBERT JONES drew attention to the cases of

FLAIL PARALYTIC ELBOW,

and, so long as movements are permitted to the hand, recommended fixation of the elbow by the removal of a diamond-shaped piece of skin at the bend, followed by accurate adjustment and suturing of the edges of the two triangles.

MR. JOSEPH COLLIER spoke of the after treatment of

ERASION OF THE KNEE-JOINT,

and insisted on the necessity for keeping the patella freely mobile from the first, by retaining a window in the plaster used for keeping the limb in extension. At the end of six months when the limb is taken out of its casing, walking should only be allowed if the patient has voluntary power of extension.

MR. ROBERT JONES also contributed a paper on

THE SURGICAL TREATMENT OF SPASTIC INFANTILE PARALYSIS,

urging that this should be done on a system involving operative, mechanical, and educational stages. So long as the patient was not an idiot, microcephalic, or subject to fits and active athetotic movements with loss of control over the secretions, he thought that treatment might be undertaken with varying success. Particular attention is to be directed to the power retained by the hands, and to the presence of ability to voluntarily relax the spasm of the limb, and prolonged care after the operation is absolutely essential in order to prevent disappointment.

PROF. A. BAGINSKY referred to the use of

BUTTERMILK AS AN INFANT FOOD.

Following the communications of De Jager and Trixira de Matos on the subject, he made use of the buttermilk, freshly prepared, in his own hospital, and obtained excellent results. Its great value, he says, shows itself in the acute cases of dyspepsia.

DR. J. S. FOWLER and DR. C. H. MELLAND both contributed papers on

SPLENIC ANEMIA IN INFANCY.

The former gave a detailed and tabulated clinical account of 20

cases he had met with, and the latter dealt similarly with 8 other cases. Both writers were of opinion that there is a type of disease in young infants associated with enlargement of the spleen, anemia, and changes in blood which has a sufficient clinical entity to merit a distinctive name, as well as a separate description.

Antitoxin.—Paton (*Australasian Medical Gazette*, April 20, 1902) has used diphtheria antitoxin for septic conditions, giving it internally, and says that its range of action is: "(1) specific for the staphylococcus and streptococcus in all their varieties; (2) specific for simple and traumatic inflammation (whether we regard such inflammation as being a distinct entity or only an attenuated sepsis, diphtheria antitoxin makes no distinction); (3) without parallel in medicine as an absorbent of inflammatory tissues left from the previous-mentioned inflammations, 1 and 2, and also of effused blood; (4) that it has considerable influence on the coagulability of blood, and (5) has great power in some depressed nervous conditions probably due to septic conditions acquired or to autotoxemia." Though he cannot say how it acts, he is satisfied that it has a beneficial effect. The gastric secretion, he holds, from such data as he has obtained, has little effect on antitoxin. He believes the oral exhibition of glandular and other organic products, such as thyroid and suprarenal, is sufficiently a parallel to justify the exhibition of antitoxin serum in this way. His formula for using it is given as follows:

R̄ Diphtheria antitoxin, 3000 units.

Trag, carmin q. s.

Aq. ad℥ii

M. Sig.: Dose one half ounce (which equals 750 units).

The time of administration varies from night and morning to every four hours, but the latter is only used in exceptionally severe cases; it is better to give too much than too little. For erysipelas ℥ss every eight hours is usually effective. For acute peritonitis and appendicitis ℥ss at once, ℥ss in two hours, ℥ss four hours later, and afterward every six to eight hours, now usually does all that is required. For children the full doses may be given, as the antitoxin is harmless, but usually for small children half the dose is quite effectual. In about 1 per cent. of the cases either a little kidney irritation or skin eruption may be seen, but they are of the most superficial and fleeting character.—*Journal of the American Medical Association*.

SOCIETY FOR THE STUDY OF DISEASE IN
CHILDREN.—LONDON.

Meeting of October 17, 1902.

DR. G. A. SUTHERLAND, CHAIRMAN.

MR. W. M. BURGESS (Harlesden) showed a boy of four-and-a-half years, who had been treated for

A CAPILLARY NEVUS

on the left side of the neck by nitric acid and by the actual cautery.

MR. FRANCIS JAFFREY preferred excision as a treatment for nevi unless they were situated round the orifices.

MR. WALTER EDMUNDS relied upon the electric point for the treatment on the face and considered that Mr. Burgess' result was good.

MR. ALBERT CORLESS also thought the result satisfactory, but he preferred excision. He called attention to nevi which had been left alone and which had remained quiescent for years, but which suddenly burst into activity and became almost angio-sarcomatous.

DR. E. CAUTLEY showed a

MODERATELY RICKETY BOY AGED THIRTEEN MONTHS WITH GREAT
ENLARGEMENT OF THE SPLEEN

and some enlargement of the liver. Leukocytosis was a feature of the case. Five weeks of hospital treatment failed to benefit him. He was discharged and quickly readmitted with numerous petechial hemorrhages and numerous myelocytes were found in the blood. He improved and was discharged in six weeks' time. When shown, the spleen was still very large, but he was not anemic.

DR. R. HUTCHISON thought the case must be placed in that group of anemias associated with splenic enlargement which was

quite peculiar to children, and which might be termed the splenic anemias of infancy. He had never seen more than 10 per cent. to 13 per cent. of myelocytes in the blood, and when there were a large number of these corpuscles the cases fared badly. Microscopically, as far as his experience carried him, all that could be seen was a general increase of the fibrous tissue, a condition common to many splenic disorders.

DR. A. E. SANSOM said there must be a cause for the condition, but it was a very subtle one. Evidently the child had taken some poison into its system which had produced what might almost be called "a malarial intoxication."

DR. C. W. CHAPMAN asked whether these cases were more prevalent amongst the poor than the rich.

THE CHAIRMAN enquired as to the prognosis, which he believed to be good in the absence of some intercurrent complaint to which such cases were liable. He was of Dr. Sansom's opinion that some poison was absorbed into the system which produced the ill-effects.

DR. CAUTLEY, in reply, said that in his experience the prognosis was good. Cases which succumbed had nearly always some other associated ailment, often tuberculosis. His case showed, he thought, that numerous myelocytes did not necessarily indicate a fatal prognosis.

DR. LEONARD GUTHRIE showed

AN INFANT FOUR MONTHS OLD WITH DILATATION OF THE
STOMACH,

which he thought was due to pyloric obstruction. The symptoms began when six weeks old with obstinate constipation and incessant vomiting, which latter had now ceased. The stomach was greatly enlarged, its lower margin extending two inches below the umbilicus and it held fourteen ounces of fluid without causing sickness. Peristaltic waves passed across the epigastrium from left to right. The symptoms had been temporarily relieved by lavage, but now it was thought necessary to resort to an operation to obtain permanent benefit.

DR. CAUTLEY thought it would be interesting if Dr. Guthrie

could rear the child without an operation. He suggested that he should make a further trial of washing out the stomach and prescribe a well-regulated dietary, and failing to benefit the child by these measures an incision might be made. Recently 2 cases under his care had been successfully treated by pyloroplasty.

DR. H. J. SIMSON related a case with symptoms typical of pyloric obstruction which disappeared, when a suitable diet was ordered and the peristaltic movements of the stomach previously in evidence ceased to be noticed.

DR. A. E. SANSOM thought it an excellent case for surgical interference.

MR. A. H. TUBBY deprecated gastrojejunostomy and advocated pyloroplasty.

DR. C. W. CHAPMAN thought that an exploratory operation could do no harm, and Dr. D. J. Aronow said he did not see how any treatment short of an operation could benefit the child, if it were a case of pyloric obstruction.

THE CHAIRMAN did not think the peristaltic waves pointed entirely to pyloric obstruction and suggested that there was possibly some obstruction lower down.

DR. GUTHRIE, in reply, said that his original impression was that of Dr. Sutherland; but frequent subsequent examinations had convinced him that the peristaltic waves originated in the stomach and not in the bowels. He considered that he had given careful dietary a fair trial and he was now inclined to ask a surgical friend to assist him, and he proposed to leave the methods of procedure in the hands of a surgeon.

DR. CAUTLEY showed a girl, fifteen months old, who had been under his care for

HYDROCEPHALUS SINCE THE AGE OF EIGHT MONTHS,

which had been arrested by repeated lumbar puncture. The hydrocephalus was secondary to basal meningitis. In all, thirty-five ounces of cerebrospinal fluid were drawn off by repeated tapings, each being followed by a gain in weight and marked improvement of the general health. Although the hydrocephalus had been arrested, the child was blind and lacking in intelligence.

• DR. R. HUTCHISON said lumbar puncture was recommended •

in America for diagnostic purposes as well as being a therapeutic measure. He had tried it and his results had been much more disappointing. In two children fatal collapse occurred. In resorting to permanent drainage in the lumbar region there was danger of direct damage to the brain. If tapping could be commenced earlier the blindness and imbecility might be prevented. Dr. White narrated the methods he had adopted to draw off the fluid from Dr. Cautley's case.

THE CHAIRMAN mentioned that the treatment had been abandoned in America and Germany. He called attention to the closure of communication between the ventricles of the brain and the spinal meninges in sequence to posterior basic meningitis. He did not intend to try puncture. He had suffered a similar experience to that narrated by Dr. Hutchison in a way of sudden death following the operation.

DR. CAUTLEY, in reply, thought the treatment he had adopted was likely to be successful in only a few cases.

Lavage of the Intestine in the Child.—M. L. Babonneix states (*Gazette des Hôpitaux Civils et Militaires*, January 28, 1902) that some of the effects of this treatment are mechanical—a thorough cleansing of the intestinal mucosa. Others are physiological—a stimulation and regulation of the peristaltic movements of the intestine, and excitation of the secretion of the glands of the digestive tube, and especially of the liver. As to the indications for lavage of the intestine, they vary with circumstances. Many authorities extol it in cholera infantum, some do not. In acute febrile gastroenteritis, lavage of the intestine with cold water is indicated. It lowers the temperature of the body and diminishes intestinal fermentation. In cases in which the stools are extremely fetid it is especially valuable. In those forms of chronic gastroenteritis in which the intestinal symptoms predominate, this treatment is most useful. The phenomena of intoxication are often markedly ameliorated. In older children the method is equally successful. Lavage is also indicated in intestinal occlusion. The only contraindication to lavage of the intestine, as in the case of lavage of the stomach, is collapse.—*Medical Record*.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, November 11, 1902.

DR. SAMUEL McCLINTOCK HAMILL, PRESIDENT.

DR. LEO BERND reported a

CASE OF DOUBLE MITRAL DISEASE, PROBABLY CONGENITAL.

(See page 33.)

DR. J. P. CROZER GRIFFITH said that the case showed some interesting features not often seen in congenital heart-disease. Some of them might be construed to prove that the disease was postnatal. He thought, however, that the lesions had probably developed before birth. It was evident, however, that the case was not one of the more usual forms of congenital cardiac affection. Dr. Bernd had advanced the view that the accentuation of the pulmonary second sound is a proof of the fact that the disease is located in the mitral valve. Dr. Griffith believed that the accentuation might easily be such an indication, but stated, on the other hand, that it is a well-recognized fact that, in the most frequent form of congenital heart-disease, viz., the combination of pulmonary stenosis with patulous ductus arteriosus and perforate septum, the pulmonary second sound is often very greatly accentuated. We are obliged, therefore, to throw out this accentuation as a proof of mitral disease, unless upheld by other symptoms. In the case presented, he believed that it was thus upheld. There was a diastolic murmur audible at the position of the nipple and a little to the right of this. This was most probably due to a mitral stenosis; and, if this were true, the systolic murmur present was probably the result of mitral regurgitation. Its points of maximum intensity and diffusion did not appear to be those of the murmur of perforate septum. The case further exhibited a curious fact—that the area of cardiac dullness was decidedly increased, especially to the right. One of the most frequent characteristics of congenital heart-disease is an absence of any great evidence of cardiac hypertrophy or dilatation. This hypertrophy in the present case, Dr. Griffith considered to be in favor of the existence of mitral disease; yet it militates, to some

extent, against its being congenital. On the whole, however, he was convinced that the case was probably one of congenital stenosis and insufficiency of the mitral orifice.

DR. A. A. ESHNER said that, on the doctrine of probabilities, if for no other reason, he thought that there was a perforate septum. That the lesion was congenital seemed to him almost unquestionable, because the symptoms of cardiac disease were noticed from birth, and because of the entire absence of any of the conditions that are likely to give rise to heart-disease. He believed that there was but one murmur, and that was systolic.

THE CHAIRMAN

PRESENTED A BOY, AGED TWO YEARS AND NINE MONTHS, WHO HAD SHOWN CEREBELLAR SYMPTOMS AFTER A FALL.

On the 25th of October he fell down five stairs, striking the back of his head on the floor. He cried for a little time after, but was apparently not much injured. Prior to this time his health had been perfect. On the second day after the fall he awakened in the morning looking pale and refused to walk. He ate his breakfast, after which he vomited. When placed on the floor, his father states that he was able to stand but, in attempting to take a few steps, staggered and fell over. He gave no evidence of fever; there was a history of slight pain in his knees and calf muscles, but no evidence of head pain. For eight weeks prior to admission he had had a coryza and mild conjunctivitis. He never had any ear pain or discharge from his ears; he had had no recent acute illness.

On examination it was found that the child when placed on the floor could stand alone, but in attempting to walk he had a very marked staggering gait, showing a tendency to fall to the left. Occasionally he did fall and always to the left. His knee jerks were much exaggerated. Aside from this there was practically no abnormality discovered. His temperature at this time was 97.5° F.

The patient's condition began to improve after a few days and by the end of two weeks the symptoms had almost entirely disappeared. The condition was looked upon as probably due to congestion resulting from concussion or hemorrhage into the cerebellum as a result of the fall.

DR. HARLAND said that the history stated that the child had

had a very severe cold for several weeks before and during this attack. Swelling of the Eustachian tube from this cold would lead to its occlusion; and consequent pressure upon the labyrinth by exudates in the middle ear could produce vomiting and a staggering gait, lasting for twenty-four hours or more. This was suggested as a possible explanation of the case.

DR. CHARLES W. BURR, in discussion, said he thought that the child's gait had become perfectly normal. The case is very obscure, and he feels very doubtful as to its diagnosis. He has never seen organic ataxia lasting but a few days and then passing away entirely, and he knows of no case in which this has occurred in organic cerebellar disease.

It is much easier, said he, to tell what the condition is not than to determine what it is. He considers hemorrhage extremely improbable, as a hemorrhage large enough to cause these symptoms would have caused more severe symptoms; and even a small hemorrhage would have produced more persistent symptoms.

He doubted whether the history of a fall is of much importance in the case. The parental history of many conditions in children very frequently includes the story of a fall, for falls are everyday occurrences in childhood. In this case the child was said to have had only a slight tumble, and to have played afterwards; and the cerebellar symptoms did not come on for some time thereafter. This fact seems to Dr. Burr to make the injury an improbable cause of the condition.

Encephalitis, he thinks, is also very improbable, because of the transitory character of the symptoms, the absence of any residual symptoms, and the absence of fever while the symptoms were present. Dr. Harland had just suggested the possibility of middle-ear disease as a cause. The speaker thought this suggestion worthy of serious consideration, as being, perhaps, the best explanation that had been offered.

DR. ESHNER asked whether the question of commotion or concussion of the brain had been taken up. The history of a fall makes such a cause seem possible, and it appeared to him that commotion would explain the symptoms, particularly in view of their transitory character.

DR. J. H. JOPSON considered Dr. Eshner's suggestion a very rational explanation of the condition. Dr. Burr had referred to the fact that the symptoms did not come on until many hours

after the accident, and had said that he did not think that hemorrhage could have been present. In concussion or commotion, however, we have punctate hemorrhages; and there is no reason why these should not have been present in this case. That the symptoms in commotion may be very severe and yet disappear very rapidly, is shown by the case of a boy seen by Dr. Jopson last spring. In this case signs of concussion appeared, lasted for a short time, and were then followed by an intermediate stage of some hours; after which, unconsciousness followed by convulsions and by other signs suggestive of rupture of the middle meningeal artery, was noted. These symptoms were so pronounced as to lead to trephining. No hemorrhage was found, however, and the boy appeared practically well the next morning. He has had no further cerebral symptoms.

DR. BURR asked Dr. Jopson whether he had ever seen a case of concussion after a slight fall with an interval of many hours, during which there had been absolutely no symptoms, the symptoms of concussion then appearing for the first time—or, rather, a staggering gait appearing, with no symptoms of concussion.

In saying what he had in regard to hemorrhage, Dr. Burr had referred purely to gross hemorrhages into the cerebellum; and not to punctate hemorrhages into the whole brain, such as occur in concussion. He does not believe that this child had a gross hemorrhage into the cerebellum, nor does he think that the symptoms are compatible with a diagnosis of concussion.

DR. JOPSON said that he had not seen any case in which there was a prolonged period of freedom from symptoms just after the accident, followed by symptoms of concussion; and the fact that such a period did occur in this case is against concussion. The fall, however, was a serious one, and would seem to have a direct relation to the symptoms; and the speaker believes that concussion must be considered possible in the case.

THE CHAIRMAN, in closing, said that the remarks he had made in presenting the case seemed to him in entire agreement with Dr. Burr's views as to the absence of encephalitis and hemorrhage. He had said that he thought the condition due to congestion, which was probably associated with commotion. Middle-ear disease had been thought of, but had been excluded, because the ataxia was so marked and continuous while it lasted, and because it had persisted for a week. If middle-ear disease

had been present, and had caused such prolonged symptoms, it would certainly have given rise to recognizable local signs of its presence. He had no knowledge of the reflexes in the ataxia due to middle-ear disease and he asked Dr. Burr to give him some information regarding the state of the reflexes in this condition. In his case they were greatly exaggerated, which fact made him firmer in his belief that cerebellar disorder was present.

DR. BURR said that the only cases of ataxia in ear-disease that he has seen were instances of Ménière's disease. The patients had no middle-ear disease, and no disease of the Eustachian tube; hence, the conditions in these cases are not comparable with those in the cases under discussion. They, however, did not show any alteration in the knee-jerks. This is his personal experience alone; therefore, he could not say whether it is the usual condition in Ménière's disease.

The Chairman had said that this patient had shown an increased knee-jerk. As a matter of fact, an increased knee-jerk in connection with cerebellar disease means, as a rule, that the disease is not confined to the middle lobe of the cerebellum; but that it is causing pressure upon the motor tracts, or that there is coincident disease of those tracts. In pure disease of the middle lobe of the cerebellum, the knee-jerks are, as a rule, absent; therefore, Dr. Burr believes that there is no special stress to be laid upon an increase of the knee-jerks, in considering the question of disorder of the cerebellum in this case.

DR. HAMILL then read a

REVIEW OF SOME OF THE OLDER WRITINGS ON MATERNAL NURSING.

There was no discussion.

DR. THEODORE LE BOUTILLIER reported a case of

CHRONIC INTESTINAL INDIGESTION WITH ACUTE EXACERBATION AND MENINGISMUS.

The patient was a child two-and-a-half years old that had always been healthy, except for some constipation and a capricious appetite. At the time of the attack, there was a marked increase of the constipation, followed by vomiting with fever. The child developed delirium; began picking at the bed-clothes; and showed nystagmus, rigidity of the neck and back, and muscular twitchings. There were two distinct convulsive attacks, following which a

left-sided paralysis of the facial muscles was noticed. There was then a third convulsive attack, which was followed by stupor, persisting for twenty-four hours. After this, there was improvement. The nystagmus disappeared two days later, the paralysis cleared up within a week, and in three weeks the child was running about in good health.

DR. GRIFFITH referred to the fact that meningismus and meningitis resemble each other closely in many instances. One is often in doubt whether the symptoms are due to a toxic or to a truly inflammatory involvement of the meninges. This is so generally recognized that some writers are disposed to class all, or nearly all kinds of meningismus as instances of a serous meningitis.

A Specific Pertussis Serum.—Dr. Leureaux of Brussels claims to have prepared an antipertussis serum of therapeutic value. He asserts that he has used the serum in a number of cases, and has succeeded in cutting the disease short within a week or ten days, when the injections were given at an early stage. The first effects are manifest at the end of thirty-six to forty-eight hours, the paroxysms of coughing being markedly reduced.—*Medical Record.*

The Indications for Trephining in the Cerebral Hemorrhage of Whooping-Cough.—Loewy says that the cerebral hemorrhages occurring in this disease sometimes fall within the jurisdiction of the surgeon. This is the case when there are pronounced symptoms of cerebral irritation and when the sudden appearance of the nervous disturbances points to extensive extradural, subdural, or cortical hemorrhage. Under these conditions, so long as there are no distinct pressure symptoms, the pulse remains good, and the condition is not becoming steadily more serious, it is preferable to wait. Hemorrhages, especially subdural, may be completely absorbed, and symptoms of circumscribed bleeding may be produced through capillary hemorrhages into the cortex, or simple edema, and even entirely negative autopsies are on record with such symptoms. If, on the other hand, the condition becomes aggravated, and especially if the pulse is that of intracranial pressure, trephining is indicated as in any other form of intra- or extradural hemorrhage. The longer the time that has elapsed since the onset of the symptoms, the less chance is there of operation being needed. Lumbar puncture is always indicated, and should be done early, since it is harmless, gives valuable diagnostic data, and diminishes intracranial tension, if present.—*Deutsche Zeitschrift für Chirurgie.*

THE NEW YORK ACADEMY OF MEDICINE.—SECTION ON PEDIATRICS.

Stated Meeting, November 13, 1902.

ROWLAND G. FREEMAN, M.D., CHAIRMAN.

A CASE OF MENINGITIS TREATED BY LUMBAR PUNCTURE.

DR. S. ORMOND GOLDAN reported this case because the puncture had been done primarily as a therapeutic measure. The patient was an infant of eleven months who, when first seen was vomiting persistently and was inclined to be apathetic. Later convulsions were added, and then complete paralysis of the right side of the body with left ptosis. After the fifth day the convulsions ceased, but the temperature steadily rose until it reached 105° F., and the child sank into coma. A swelling appeared at the fontanel on the second day of illness and became larger up to the time of making the puncture on the fifth day. This puncture was made between the third and fourth lumbar vertebræ, and 14 c. c. of fluid were removed. This was followed by immediate improvement, and by the end of two weeks the child appeared to have completely recovered. This procedure is simple and almost free from risk, and appears to act as does the removal of a small quantity of fluid in some cases of pleuritic effusion.

A CASE OF ACHONDROPLASIA.

DR. CHARLES HERRMAN reported this case and presented the patient, a boy who had been born naturally. He did not begin to sit up until five years old and did not walk until the age of seven, although the first tooth erupted at the age of nine months. At the present time, although the boy is fifteen years old, his height is that of a boy of seven, and his head of about the proper size of one of his age. His trunk corresponds to that of a child of thirteen, while the lower extremities belong to one of four-and-a-half years. The femur is slightly shorter than the tibia, and the marked curve in the tibia is partly due to a curve in that bone, and partly to the mode of articulation at the knee. The chief pathologic process appeared to be located in the bone and the epiphysis,

the cartilage cells being in irregular groups instead of being in columns. Radiographs of the case were exhibited. This condition had also been described under the name of fetal rickets, fetal myxedema and fetal chondrodystrophy. An important diagnostic sign was the lack of correspondence in the trunk and extremities. Should these children survive infancy statistics showed that they usually became very strong and healthy. (For full report of case see page 18.)

ADHERENT PERICARDIUM.

DR. GEORGE M. SWIFT read a paper on this subject and presented pathological specimens. That the condition was not very rare was shown by the occurrence of 18 cases in St. Mary's Free Hospital for Children since 1886. Cardiac stimulants usually acted badly in such children. At autopsy, the pericardium was found glued to the cardiac muscle and chest wall, and although valvular lesions were often absent the occurrence of murmurs was explained by the presence of these adhesions. Enlargement of the liver was often the first sign of adherent pericardium, and changes in the size of the liver frequently marked the fluctuations of the disease. Most of the cases had their origin in rheumatism, though a few resulted from pneumococcus infection. Tuberculosis of the pericardium was seen in older subjects. The clinical signs of adherent pericardium were: A diffused cardiac impulse, sometimes with a drawing in of the intercostal spaces during systole, and enlargement of the liver, sometimes to such an extent that this organ reached to the level of the umbilicus. If the rheumatism could be controlled and the patient given an abundance of nitrogenous food and proper care, the prognosis was fairly good.

THE CHAIRMAN remarked that while pathologist of St. Mary's Hospital he had been struck with Dr. Swift's ability to accurately diagnose these cases.

DR. JACOB SOBEL asked if Dr. Swift agreed with the Germans in considering the paradoxical pulse pathognomonic of this condition.

DR. E. LIBMAN said it had been proved that the paradoxical pulse may arise from various forms of interference in the mediastinum, and was found in cases of open ductus arteriosus.

DR. SWIFT said he had not found the paradoxical pulse of any

special value in the diagnosis of adherent pericardium. The comparative frequency of adherent pericardium in children showed that acute pericarditis must likewise be more common than had been generally supposed. In these cases any improvement in the circulatory conditions was usually associated with a reduction in the size of the liver.

PELIOSIS RHEUMATICA IN CHILDREN, WITH A BRIEF REVIEW OF THE LITERATURE.

DR. HENRY HEIMAN presented a paper with this title. (See page 904, December, 1902.)

DR. JACOB SOBEL said that the cases of this kind that he had seen had occurred at the season of the year when rheumatism was most prevalent, and that they had responded promptly to the use of the salicylates. They were often associated with erythema nodosum.

DR. SARA WELT-KAKELS said that she had seen a case of peliosis rheumatica last summer in a child of four years. The joints of the lower extremities were painful and there were some hemorrhagic spots. During observation a murmur developed at the apex of the heart, and was still present, and there was now a mitral insufficiency.

DR. C. HERRMAN said that he had presented to the Harlem Medical Association about two years ago a typical case of Henoch's purpura, which presented some points of resemblance to angioneurotic edema. The peculiar epigastric pains reminded one of the crises of tabes, but were quickly recovered from. He thought it possible that the hemorrhages and pains might be the result of a vasomotor neurosis of central origin.

DR. G. M. SWIFT reported a case occurring in a girl of eleven years, who had come to the hospital from an institution in which she had had a varied diet, including fruit. The illness had begun with symptoms of a cold, which on the third day had been followed by pain in the leg and foot. On admission, there were purpuric spots on the trunk and face, including the eyelids, and here there was also much swelling. There was a swollen and ecchymotic spot on the hard palate, and the uvula and right tonsil were the seat of a submucous hemorrhage. The temperature was 101.2°F., yet the general condition of the patient was good. After

two days there was less swelling, but the ecchymotic spots were larger, and on the following day the conjunctiva was also ecchymotic, and the ears, wrists and hands were discolored and swollen. The gums were swollen and the stools of the color of tar. After about eight days the patches on the skin became red and elevated, and this change was accompanied by pruritus. (For full report of case see page 26.)

DR. LA FETRA called attention to the uncommon feature in this case of swelling of the lower eyelids, and said that he now had such a case under observation. In his case there were tender spots all over the trunk, associated with slight fever and sore throat.

DR. E. LIBMAN said he had made bacteriological cultures from four or five of these cases with entirely negative results. He was disposed to look upon the disease as a toxemia rather than an infection, and the frequent relapses seemed to give some support to this view.

DR. B. LAPOWSKI said that Dr. Swift's case showed clearly that peliosis is a combination of several diseases, among them being erythema nodosum. The diagnosis of peliosis should never be made until gonorrhea had been excluded.

DR. HEIMAN, in closing, said that he had only observed desquamation in cases characterized by a papular eruption. The epigastric pain could be explained as due to a myositis. The anti-rheumatic treatment proved as useful as any other.

Some Physiological Factors Involved in the Origin of Scurvy (Scurbutus).—R. R. Rogers states (*The Journal of the American Medical Association*, Vol. xxxix., No. 18) that the direct cause for the appearance or continuance of an attack of scurvy does not depend upon the activity of microorganisms although the latter may establish conditions favorable to the onset of scurvy or aggravate a case already existing.

The direct cause for the appearance or continuance of an attack of scurvy lies in the establishment of the condition known as "lack of oxygen" in the tissues.

Those conditions which tend to prevent the formation of acid, *i.e.*, of hydrogen ions (and possibly other products also) in the tissues and tend to increase the store of available alkalinity, *i.e.*, hydroxyl ions, in the blood and lymph, are the conditions most antagonistic to the development of scurvy or its continuance, and those most favorable to its cure.

THE NEW YORK ACADEMY OF MEDICINE.—SECTION
ON ORTHOPEDIC SURGERY.

Meeting of October 17, 1902.

GEORGE R. ELLIOTT, M.D., CHAIRMAN.

DR. HOMER GIBNEY presented 2 cases of
EXOSTOSIS OF THE UPPER THIRD OF THE HUMERUS, WITH X-RAY
PLATES.

One case, a boy of nine, showed the growth on the inner aspect of the bone; it had first been noticed two months ago. The second case was that of a little girl, *aet.* eleven, in whom the growth was on the outer aspect of the humerus, which had first been noticed only five weeks ago. In neither case were there subjective symptoms.

DR. SAMUEL LLOYD said that the exostosis cases recalled a case of myositis multiplex progressiva in a boy seven years old, who had inflammation of the tendons of the pectoralis major on both sides and of the teres major and minor. The disease was unilateral. The child came to the hospital with beginning ossification of the sternocleidomastoid on each side. He was regularly treated by thyroid and the ossification disappeared in the tendons in which there had not been complete ossification but in the pectorales and in the teres there was no improvement. He operated on the pectoralis on the right side to determine the condition and found that the myositis ran along the tendon, spread out over the tendinous interdigitations into the muscle and came down the bicipital groove, spreading from the edges of this groove and along the course of the tendon so that the end of the tendon looked like the end of a finger—an absolutely bony exostosis. The tendon broke away from the groove and was dissected out. Inflammatory myositis followed the operation and ossification was expected along that line but this did not happen. Later the same condition was removed down to the insertion of the muscles and good motion resulted in both arms. When the patient came to the hospital he had no motion except 4-5° of abduction. He remained in good condition until a short time ago, when a similar condition

started up in the thighs which was not arrested by thyroid. The interesting fact in this case was that the tendinous sheaths were involved and the ossification had spread into the tendon itself but did not include the actual muscular tissue.

DR. SAMUEL LLOYD then read a paper on

INTERNAL DERANGEMENTS OF THE ELBOW JOINT,

which was discussed at length by the members of the section.

DR. WEIGEL read a paper entitled

ACUTE BONE ATROPHY FROM INJURY TO THE EXTREMITIES.

Hydrotherapy in Pneumonia.—Brieger (*Zeitschrift für dietätische und physikalische Therapie*, Vol. V., Heft. 1) says that a rational system of combating pneumonia by means of hydrotherapy can only be perfected by a knowledge of the biological characteristics of the bacterium which causes the disease. The theoretical action of hydrotherapy in pneumonia due to the invasion of various germs is the destruction of toxins, the promotion of the formation of antitoxins, the multiplication of leukocytes, and the presence of a greater amount of water in the blood—in other words a cure by the methods of Nature. The author says that, inasmuch as pneumococci and streptococci are found in the blood in severe cases, these should be regarded as instances of sepsis, and should, therefore, be treated accordingly, i.e., by means of baths, douches, alcohol, etc. Too cold baths, however, will drive the bacteria in the blood into the internal organs, and thus destroy the latter rapidly. In this way we may explain the symptoms of collapse following the very cold baths that are given by some clinicians. Yet cold baths, in virtue of their stimulation to the processes of oxidation, destroy the toxic substances that thus circulate in the blood, provided, of course, that the inflammation has not involved a large portion of the lung. As the critical perspiration brings on the lowering of the temperature, it is well to promote this event by the use of mild hydrotherapeutic methods, such as the use of warm baths, and in children the dry pack is of great value and is well borne even by the weakest ones. In adults these procedures are not well applicable, as they are very uncomfortable under this treatment. In old persons they should be avoided, as they may be even dangerous. In such cases packs about the breast with room-temperature water are of benefit, and these are specially applicable in cases that complicate influenza. During the packs the patient should receive warm drinks and a moderate amount of alcohol.—*New York Medical Journal*.

Current Literature.

PATHOLOGY.

Warfield, L. M.: The Differential Leukocyte Count in the Newborn. (*American Medicine*. Vol. iv., No. 12.)

In 10 cases the blood was counted as soon as possible after birth before the child had received any nourishment, and again on the third and eleventh days of life. It was found that the leukocytes are more numerous on the day of birth than at any other time of normal life. Nucleated red blood cells rapidly disappear from the circulating blood of the healthy infant within the first three days of life. The percentage of eosinophiles varies widely in the blood of babies of the same age. Myelocytes and "mastzellen" are only occasionally found and in very small numbers. The percentage of large mononuclear and transitional cells is largely compared to that found in the blood of adults. The polymorphonuclear cells at birth are not only relatively but absolutely increased. They begin to decrease soon after birth, and by the eleventh day of a healthy infant's life they are fewer in number than the lymphocytes, while the number of the latter has actually increased. The differential leukocyte count on the eleventh day is practically identical with the count given in the text-books as normal for the infant's blood.

Stokes, Ruhrah and Rohrer: The Relation of the Thymus Gland to Marasmus. (*The American Journal of the Medical Sciences*. Vol. cxxiv., No. 5.)

Eighteen cases of infantile atrophy or marasmus, with autopsies, were investigated. The average weight of the thymus gland was 2.2 grams, the lowest being 1.2 and the highest 7.5 grams. The normal weight is 18 grams. In the atrophied glands the connective tissue capsule and trabeculae were greatly thickened, and the lymphocytes and other cellular elements greatly decreased in number as a result. The bodies of Hassall were increased in size and had undergone hyaline degeneration. In 3 cases of secondary atrophy (due to tuberculosis) in children under one year of age, the thymus was also atrophied, the difference in the lesion between these and the cases of infantile atrophy being merely one of degree.

The condition of the thymus gland is an index of the general nutrition in infants, and the state of nutrition may be estimated by a microscopic examination of the thymus at autopsy.

Monsarrat and Warrington: Case of Arrested Development of the Cerebellum and its Peduncles. (*The British Medical Journal.* No. 2178.)

A female child, six weeks old, with hydrocephalus, talipes varus, healed lumbar spina bifida, and no power of motion in either leg, died of gastroenteritis. At the autopsy the cord was found attenuated throughout; in the lumbar region it passed into a mass of cicatrix at the level of the spina bifida; in the dorsal region it was divided into equal halves, between which an exostosis projected; the spinal roots and nerves appeared normal; around the cord and between it and the dura was a quantity of loose friable tissue. In the medulla there was no prominence corresponding to the anterior pyramid and olive, and the medulla passed insensibly into the pons. The cerebellum was extremely rudimentary, only represented by a few minute leaflets. The mesencephalon was represented by a single large structure, no trace of a division into anterior and posterior corpora quadrigemina being seen. The cerebrum exhibited a condition of marked hydrocephalus. The case exhibits therefore a condition of arrested development of the whole of the central nervous system from the mesencephalon downwards. The association of this with deformities of the surrounding parts is of importance; that is to say, the spina bifida, the exostosis described, and the transformation of the membranous coverings. From the point of view of pathogenesis the following classes of cases of cerebellar atrophy may be distinguished:

1. Cerebellum almost completely absent on one or both sides, condition primarily due to arrest of development.
2. Cerebellum congenitally small, but of normal histological structure.
3. Comprises the majority of cases. There is an atrophy with a general sclerotic condition. The cortex appears to be primarily affected, either in whole or part, the disappearance of white matter corresponding to the extent of cortical defect. There are often indications of chronic meningitis and vascular degeneration. The symptoms are those of epilepsy with mental enfeeblement and, in a number of cases, date from the occurrence of some acute infective

disease. The vascular changes are usually secondary. Probably an acute disease acts as an exciting agent in developing a previously existing morbid condition and leading to retrograde changes in the nervous tissue.

4. Primary vascular disease attended by chronic interstitial inflammatory changes, chiefly affecting the white matter, a cirrhosis cerebelli—comparable to cirrhosis of the kidney. This is a rare condition.

5. A primary atrophy affecting the cerebellar cortex, the nuclei of the pons and in the inferior olives accompanied by marked atrophy of the middle peduncle and partial atrophy of the restiform body. This also is a rare condition. Three cases have been described by Thomas and Déjerine and the atrophy of cells is considered to be comparable to the Duchenne-Aran atrophy of the ventral cornua.

Simmonds, M.: On Suprarenal Hemorrhages. (*Virchow's Archiv.* Vol. clxx., No. 2.)

From a study of cases of hemorrhage into the suprarenal body occurring in adults and in infants, the author finds that small ecchymoses occur in the course of many infectious diseases and are to be looked upon as toxic hemorrhages. Hemorrhagic infarction of both suprarenals often causes death with symptoms of peritonitis and collapse, although these signs may be absent. Occasionally large hematomata may result from suprarenal hemorrhages, and the latter may be caused by : (a) traumatism, under which head the hemorrhages in the newly-born are to be classed; (b) the hemorrhagic diathesis; (c) thrombosis of the suprarenal veins; (d) bacterial capillary emboli. The third and fourth are the most frequent causes. Thrombosis of the suprarenal veins is of the marantic variety and occurs, as a rule, in chronic diseases only; the special distribution of the vessels in the suprarenal bodies favors its occurrence. Emboli of bacteria were observed in cases clinically and anatomically free from any signs of sepsis. Suprarenal hemorrhages may lead to destruction of those organs.

Fisher, T.: Case of Thrombosis of the Cerebral Veins and Sinuses Associated with Bronchopneumonia. (*The Brit. Med. Jour.* No. 2178.)

A girl of four years had repeated tonic convulsions of the right half of the body in the course of a bronchopneumonia. The

diplococcus intracellularis was found in fluid obtained by lumbar puncture.

At the necropsy the posterior two-thirds of the superior longitudinal sinus was found blocked by pale thrombus. On raising the dura mater the cerebral veins running up to the sinus on both sides were found thrombosed. The convolutions over the right cerebral hemisphere appeared healthy, but there was great congestion and some superficial hemorrhage over the upper two-thirds of the left parietal lobe, the convolutions of which were much swollen and softened. On tracing the thrombus in the superior longitudinal sinus backwards it was found to extend into both lateral sinuses. On the right side, however, it ceased at the downward bend of this sinus over the mastoid, and on the left side was mixed with much postmortem clot. It was evident that the thrombosis had not extended to the superior longitudinal sinus from the left lateral sinus, and the thrombus on the right lateral sinus was of very firm character, quite different from the clotting generally seen associated with middle-ear disease. The cavernous and other sinuses were free from antemortem thrombus. Both middle ears contained some pus, which was free from smell. There was no trace of meningitis. The only other organ which presented anything noteworthy was the left lung, the lower lobe of which was solid throughout, and the posterior half of the upper lobe had also consolidated. The consolidation had the appearance of confluent bronchopneumonia, and microscopical examination proved it to be the catarrhal form.

Bacteriological Examination.—Coverslip preparations taken from the thrombus in the superior longitudinal sinus showed the presence of a diplococcus, which stained with Gram's method. Some cocci, chiefly staphylococci, were also present. Coverslip preparations from the lung and the pus in the middle ears showed the same microorganisms. Cultures on agar, and gelatin, from the lung and from the thrombus showed the presence of a diplococcus, which grew like the diplococcus pneumoniae. The staphylococcus pyogenes aureus was also present. Cultures from the spleen proved sterile.

In the above case infection may possibly be considered to have started in infection from the middle ears, but both the ear disease and the thrombosis may have been evidence of a blood infection, undoubtedly present in most cases of bronchopneumonia.

MEDICINE.

Cera, Enrique: Hypertoxic Typhoid Ending Fatally on the Tenth day. (*La Medicina de Los Niños.* Vol. iii., No. 52.)

The patient, eight years of age, was admitted to the clinic on the third day of her disease, which was recognized as typhoid by the presence of Eberth's bacillus in the stools. A positive diazo reaction was obtained. The high initial temperature and marked stupor indicated a hypertoxic type of the disease. The treatment consisted of intestinal antisepsis and cold baths. On the third day after admission the temperature dropped suddenly to 35.5° C. Under stimulation it rose once more above the normal, only to sink again permanently, the stupor passing into coma with death on the seventh day after admission.

Montero Portas, Santiago: Pseudocoxalgia due to Double Epiphysitis. (*La Medicina de los Niños.* Vol. iii., No. 51.)

The patient was a female, aged three and one-half years. She was in excellent condition and free from stigmata of disease save for the condition to be described. There was some difficulty in locomotion and the child was placed upon the table in a supine position, where examination of the hip joints revealed an impediment to circumduction with tenderness on percussion over the trochanters. Coxalgia and psoriasis could be excluded and a diagnosis was made of double epiphysitis. The cause was entirely obscure. Recovery followed repose in bed for twenty days. An ointment containing ichthyol and sublimate was applied over the trochanters.

Petrone, Guiseppe Antonio: A Case of Tuberculous Peritonitis Simulating Atrophic Cirrhosis of the Liver of Malarial Origin. (*La Pediatria.* Vol. ix., No. 7.)

The patient was a boy aged twelve years and was first seen July 28, 1901. He was a foundling, adopted by a poor peasant family, and had enjoyed good health until November, 1898, when he was seized with an ague which persisted for four months and left him weak and unable to work. Ascites developed, and after two punctures the boy was sent to the clinic. In consultation there was a difference of opinion as to whether the ailment was atrophic cirrhosis or tuberculous peritonitis. The author's opinion that the latter condition was present was based upon 1, the great infrequency of atrophic cirrhosis in infancy; 2, absence of

any marked enlargement of the spleen which would indicate a malarial factor; and 3, good general condition, which would be compatible with a localized tuberculosis but not with advanced cirrhosis. Examination of the urine showed no evidence of hepatic insufficiency. The fluid obtained by tapping pointed to the presence of an inflammatory process. Tuberculin injections gave a positive reaction. After medical management had completely failed, the case was transferred to the surgical department. Laparotomy resulted in a confirmation of the diagnosis. After the healing of the external wound, fluid reaccumulated and made its exit spontaneously. The opening continued to discharge and no attempt was made to close it. A fistula persisted for some time with eventual spontaneous closure. The general condition, which had become much impaired, underwent considerable improvement and the patient was considered as cured.

Del Gaudio, Enrico: The Alimentary Dermatoses of Infancy. (*Archives di Patologia e Clinica Infantile.* Vol. i., No. 3.)

Three cases are reported, characterized chiefly by the super-vention of erythematous lesions after a period of prolonged indigestion, which in turn must be referred to abuses of diet. Recovery occurred readily after the adoption of a suitable regimen, with mild external remedies (tepid baths, antiseptics).

It is assumed that in this class of cases a coccemia is present to account for the presence of the pustular outbreak. This, however, represents a secondary infection. Many of the lesions are not pustular, but characteristic of various other dermatoses; and are doubtless due to the presence of a toxemia consequent upon intestinal fermentation.

Morse, J. L.: Cirrhosis of the Liver in Childhood. (*The Boston Medical and Surgical Journal.* Vol. cxlvii., No. 11.)

Cirrhosis of the liver in childhood occurs in about one in 20,000 hospital cases. The form due to obliteration of the bile ducts occurs only in early infancy, the ordinary forms most commonly between nine and twelve years of age. Cirrhosis with enlargement of the liver is more common than cirrhosis with diminution in the size of the liver. Congenital syphilis is the most frequent cause, and alcohol is responsible for from 10 per cent. to 25 per cent. In about 60 per cent. there is no evident cause. It is probable that the products of abnormal fermentation or decomposition in the digestive tract are a more frequent cause of

cirrhosis in infancy than in adult life, and that the products of bacterial growth are more harmful at this age. Cirrhosis in connection with congenital obstruction of the bile ducts is probably due to irritants derived from the mother, which cause a cirrhosis and cholangitis, the cholangitis descending and obliterating the larger ducts.

Marsden, R. W.: Fourth Disease. (*The Lancet*, No. 4120. 1902.)

A differential diagnosis must keep in mind the following types of disease: scarlet fever, scarlatiniform variety of rubella, morbilliform variety of rubella, and measles. Reviewing the evidence upon which the differentiation of a fourth disease has been based, the author thinks that it must be admitted that more conclusive details must be brought forward before we can feel satisfied that its definite nature has been distinguished. He does not deny, however, the possibility that the disease may exist.

Sutherland, G. A.: Some Neuroses in Childhood. (*The Edinburgh Medical Journal*. Vol. xii., No. 3.)

Cases of functional tremors of the arm, spastic contraction of the right leg, functional aphonia and eructation, functional paraplegia, and functional difficulty in swallowing are cited. The factors predisposing to such functional disturbances are both hereditary and acquired. These neuroses are most frequent between the ages of nine and fourteen years, and are undoubtedly to be associated with the developmental changes preceding puberty. The most important and difficult part of the treatment is the removal of the child from its parents and home surroundings. The next best thing is to place the patient under the charge of a trained nurse. The child is to be encouraged to use his mind and body, and should be taught self-control. Massage, cold baths, faradism and life in the open air are to be used for their tonic effects.

Mackenzie, D. H.: Epidemic Poliomyelitis, with a Report of Ten Cases. (*Medical Record*. Vol. lxii., No. 14.)

During the summer and autumn of 1899 there occurred in Dutchess County, New York, an epidemic of some 30 cases of an acute form of disease seemingly infectious and of bacterial origin, presenting in its initial stages the clinical features of an acute germ invasion, quickly followed by atrophic paralysis of asso-

ciated muscle groups, in one or more extremities. Ten cases came under the writer's care, three adults and seven children; while seven others were known of by him. Only two of these seventeen, of which four died, presented the classical symptoms of poliomyelitis. One was undoubtedly cerebrospinal meningitis, and two were diagnosed as Landry's paralysis. Most of the cases which did not prove fatal in the acute stage fully recovered.

It would seem that during this epidemic there occurred cases of poliomyelitis, cerebrospinal meningitis, and multiple neuritis, probably all arising from the same cause and from the same microbic infection.

McFarland, J.: Tetanus and Vaccination. (*The Lancet*. No. 4124. 1902.)

From an analytical study of 95 cases of tetanus complicating vaccination, the following conclusions are reached: that the complication is not a common one, the number of cases observed during 1901 being out of proportion to what had been observed heretofore. The cases are chiefly American, being scattered throughout the Eastern United States and Canada, and have nothing to do with atmospheric or telluric conditions. A small number occurred after the use of various viruses, and an overwhelming proportion after the use of a certain virus. The tetanus bacillus is in the virus in small numbers, being derived from the manure and hay. Occasionally, through carelessness or accident, the number of bacilli becomes greater than usual and may lead to the epidemic occurrence of tetanus. The future avoidance of the complication is to be sought for in greater care in the preparation of the vaccine virus.

Acker, G. N.: Essential or Toxemic Dropsy in Children. (*The American Journal of Obstetrics*. Vol. xlv., No. 8.)

Four cases are reported, in all of which the anemia occurred in children who had suffered for some time from gastrointestinal disease and were in poor physical condition. Two cases recovered and two proved fatal, the edema disappearing before death in both. The author has never seen this form of dropsy occur as a primary disease, but always secondary to gastrointestinal disorders. He believes that it is due to a toxic poison arising in the intestines and acting upon the capillaries. If there is not a toxic agent, there must be some chemical alteration of the blood which causes the serum to transude.

No symptoms can be ascribed to the dropsy, for it does not seem to modify the course of the primary disease. The prognosis is unfavorable but not necessarily fatal. The treatment will be chiefly dietetic and tonic.

Churchill, F. S.: The Widal Reaction in Infancy and Early Childhood. (*The Chicago Medical Recorder*. Vol. xxiii., No. 4.)

Seventy-five cases were examined, ranging in age from three months to four years, the idea being that systematic study of the serum reaction in large numbers of infants and children will help to throw light on the frequency of typhoid in early life and the true nature of some of the summer intestinal infections of infancy. Positive results were obtained in 7 cases, from the fourth to the twenty-second day. The author concludes that the Widal reaction occurs in infants and children under the same conditions as in adults. It is perhaps apt to be weaker in early life.

The evidence available is overwhelmingly in favor of the theory that a "positive" reaction means typhoid, regardless of symptoms and physical signs. As these symptoms and signs are often irregular or absent in early life, the reaction is especially valuable at this time, and in two ways: By detecting mild or obscure cases, and by ruling out certain intestinal cases which might be mistaken for typhoid.

About 10 per cent. of a limited series of intestinal infections in Chicago during the summer of 1902 were typhoid; of 127 children, throughout the city, suspiciously sick, about 20 per cent. were typhoid.

Raviart and Caudron: Brachial Monoplegia in the Course of Chorea of Sydenham. (*L'Echo Med. du Nord*. Vol. vi., No. 40.)

A girl fourteen years old, of alcoholic and rheumatic family history, had an attack of subacute, polyarticular rheumatism followed by chorea. The twitchings were limited to the left side at first, but later the right also became involved. Two months after the onset of the attack the movements of the right arm ceased and gave place to an incomplete paralysis which left the fingers alone exempt. The paralysis lasted three weeks and then disappeared completely. The chorea lasted four months, but was entirely cured.

SURGERY.

Dane, J.: Remarks on Arthrosis of the Ankle for Infantile Paralysis. (*American Medicine.* Vol. iv., No. 7.)

The following points are in favor of an early operation in the severer cases of infantile paralysis: the saving of trouble and expense by avoiding the use of costly apparatus for a period of years; the relatively normal condition of the bones and absence of marked malpositions of the foot as a whole; the plastic activity of the tissues making repair more quick and more perfect than in the older child; the statics of the lower limb are so much less disturbed than at a later period and growth goes on under more nearly normal conditions; improvement in muscular power due to better development of the unaffected muscles.

Two objections to the early operation have been made, namely: the fear of an insecure cartilaginous union necessitating the use of retaining apparatus as before, and the danger of injury to the lower tibiofibular epiphysis, interfering with the growth of the limb and causing shortening. Information which disproves both these points is furnished by x-ray pictures of 2 successful cases treated by the writer. In order to secure bony union it is necessary to accurately approximate the opposing denuded surfaces. Injury to the epiphysis can only occur from carelessness at the operation.

Aronhelm-Gevelsberg: An Unpleasant Incident in Vaccination. (*Die Medic. Woche.* 1902, No. 34.)

A year-old baby was vaccinated on the arm, and a vaccine pustule appeared on the chin as well as on the arm. The explanation was that the baby must have rubbed her chin on her vaccinated arm, but the mother denied the occurrence. The case was not one of generalized vaccinia, no other lesions appearing. As the cicatrix on the chin is as large as that on the arm, the child will be disfigured for life. Had the arm been protected by a bandage the accident would have been prevented.

Dowd, C. N.: Surgical Treatment of Empyema. A Report Based Upon Seventy-five Cases, Observed Chiefly in St. Mary's Hospital for Children. (*The Medical News.* Vol. lxxxi., No. 11.)

The results are summed up as follows: (1) For simple cases of empyema the following treatment is used: Excision of

about one and a half inches of the seventh or eighth rib in the posterior axillary line; light ether anesthesia is usually employed; the purulent coagula are removed; short rubber tubing, cut partly across, doubled and held by large safety pins, is used for drainage; abundant gauze dressing is applied and changed when saturated.

(2) If the patient's condition contraindicates general anesthesia an incision into the chest may be made between two ribs under cocain anesthesia.

(3) Aspiration is only used to give temporary relief in patients who are in great distress from the pressure of the fluid, or temporarily to relieve the second side of a double empyema after the first side has been opened.

(4) The patients are allowed out of bed as soon as is practicable, and the expansion of the lung is encouraged by forced expiration.

(5) Irrigation is only used where there is a foul smelling discharge from necrotic lung tissue.

(6) Secondary operations are not done until good opportunity has been given for healing; usually three or four months should have elapsed after the primary operation, and there should have been no noticeable improvement for about a month.

(7) In the secondary operation the expansion of the lung should be encouraged by incising, stripping back, and, if necessary, removing portions of the thickened pulmonary pleura.

(8) The examination of forty-four of the patients at long periods after operation indicates that recovery is usually complete in the simple cases, and that there is surprisingly little deformity in most of the severe cases.

Méry, H.: Peritonitis from Perforation in Typhoid Fever in a Child. (*La Presse Médicale.* Tome ii., No. 64.)

The child had a mild attack of typhoid fever, on the seventeenth day of which symptoms of perforation suddenly appeared. Laparotomy was done twenty-one hours later, and showed a generalized peritonitis, the perforation being situated 4 cm. above the ileocecal valve. Twelve days after the operation the child died. At the autopsy the peritonitis was found to have persisted in the region below the umbilicus. The perforation was closed. It was situated in an ulcer which was becoming cicatrized, as were several others present near the ileocecal valve. The upper ileum

showed no lesion. There was bronchopneumonia, which complication was a contributing cause of death.

Putnam, C. R. L.: Bronchiectatic Abscess of the Lung, with the Report of a Case Treated Surgically with Success. (*The Medical News.* Vol. lxxxi., No. 11.)

The principal conditions from which bronchiectatic abscess must be differentiated are: Tubercular cavities, lung abscess, gangrene of the lung, actinomycosis and hydatid cysts.

The case observed was that of a three-year-old girl who had an attack of bronchitis with cough persisting over one year. The odor was very foul all the time; there were frequent "feverish spells," progressive loss of flesh, cough, and expectoration of large quantities of foul pus, sometimes blood-streaked. There was cavernous breathing around the angle of the right scapula, and mucous râles all over the chest. The radiograph shows a questionable area at the point of aspiration. An operation was performed in three stages, the lung tissue being cauterized with the thermocautery, and the principal cavity opened and later obliterated. Eight months later the child still showed the extremely coarse râles, showing that the general bronchiectasis was not in any way improved, but the mucus coughed up in the mornings was no longer foul.

Rabé: Primary Sarcoma of the Vagina in Children. (*Arch. de Med. des Enf.* Vol. v., No. 10.)

A sixteen-months-old baby had complained of intermittent pain in the lower abdomen for one month, with difficulty in micturition. On examination a grape-like mass as large as a nut was thought to be a urethral polyp, but was later found to be part of an extensive vaginal tumor, covering the entire mucous membrane with polypoid, grey, soft masses. There was no ulceration. Histological examination proved the sarcomatous nature of the growth, and as the tumor was growing rapidly, laparotomy was performed and the uterus and vagina removed. The body of the uterus was normal, but the vaginal surface of the cervix was covered with the same grape-like masses which filled the vagina. Bronchopneumonia caused death sixteen days after the operation. At the autopsy the bladder and rectum were normal, and there was no evidence of metastasis in any organ. The diffusion of the growth over the entire vaginal mucosa rendered all hope of a cure by surgical intervention illusory.

HYGIENE AND THERAPEUTICS.

Giordani, L.: **Contribution to the Study of the Production of Medicated Milks.—Ferruginous Milk.** (*Rev. Mens. des Mal. de l'Enfance.* Vol. xx., No. 9.)

By experimenting on goats with intramuscular injections of citrate of iron, it was proven that iron enters the milk in increasing quantities, according as the dose injected is increased. The iron is in organic composition in the milk, and is, therefore, capable of being absorbed and assimilated. The modification which the iron causes in the various milk constituents is so small that it may be overlooked, but the quantity of milk is slowly diminished. No local inconvenience is caused by the injections. One may hope to be able to produce a ferruginated milk which shall be especially useful in infantile therapeutics.

D'Orlandi, Pietro: **Organotherapy in Infantile Splenic Anemia.** (*La Pediatria.* Vol. x., No. 7.)

The following case is reported: patient eleven months old, healthy at birth, and breast-fed throughout, excepting from the third to the sixth month when the regimen was mixed. Dentition had barely begun. The baby did not appear to be ailing until the fourth month, when pallor of the skin and visible mucosæ began to be noted and became progressively worse. Eventually there developed a failure of nutrition, apathy and abdominal enlargement. Arsenic had been given for three months prior to consultation.

The spleen was found to be greatly enlarged. Examination of the blood was negative as to presence of the malarial parasite, but indicative of marked anemia. There was a considerable elevation of temperature at times.

The infant improved greatly upon a freshly prepared extract of calf's spleen. Pepsin and chlorhydric acid were the only drugs employed.

Houston, A. C.: **Practical Disinfection in Stools.** (*The Practitioner.* Vol. lxi., No. 3.)

For rooms and for furniture, books, boots, shoes, and articles liable to be injured by steam disinfection, formic aldehyde vapor, preferably Lingner's (glycoformal) apparatus, one apparatus for a room of 2,800 cubic feet, is recommended, 2 litres of glycoformal being used. Duration of exposure, four hours.

For general washing purposes, corrosive sublimate 1 in 1,000 is effective, and for sputum, excreta and vomited matters corrosive sublimate 1 to 500. The mixture must be thorough and the duration of contact one hour. Boiling water is best for linen, cups, saucers, plates, spoons and knives. Saturated steam at 115° C. for thirty minutes is sufficient for bedding, clothes, hangings, carpets and undergarments.

The results of the author's own experiments and those of others are given in the form of appendices to the article.

Caro, W.: Buttermilk as Nurslings' Food. (*Archiv. f. Kinderheilk.* Vol. xxxiv., Nos. 5 and 6.)

To one litre of buttermilk, twenty-five grams of finest wheat flour, and thirty-five grams of cane-sugar are added, and the mixture is boiled for two minutes with constant stirring. Children with normal digestion gain as rapidly when on this food as they do when on any other artificial variety. In cases of acute gastrointestinal disturbances the results were excellent, and in chronic cases they were especially good. The age of the infant makes no difference, even the newly-born digesting the mixture well.

Coutts, J. A.: Some Observations on the Occurrence and Treatment of Lobar Pneumonia in Young Children. (*The Edinburgh Medical Journal.* Vol. xii., No. 3.)

Croupous pneumonia attacks the apices of the lungs much more frequently in children than in adults. No treatment yet devised has in any way shortened the natural course of the disease. The majority of cases call for no very active medical treatment, but require rest in bed in a well ventilated apartment, at about 65° C., with careful dieting and nursing. The principal points are: to control the temperature when excessive, to alleviate pain, to procure sleep and to relieve the strain upon the right heart. Tepid sponging is generally efficacious and sufficient to reduce the temperature; and an occasional guarded dose of antipyrin is unobjectionable when the application of external cold is annoying to the patient. Alcohol may be prescribed with it. The combination of antipyrin and quinin works well, as the latter produces a more lasting reduction of temperature. A single dose of opium is of value for the relief of pain associated with hyperpyrexia and insomnia in the first "shock" of the disease. Leeches or dry cupping are beneficial for the pain of pleural inflammation. When insomnia is dependent upon constipation a copious warm enema

will often induce sleep. Alcohol and strychnin are to be relied upon in cardiac failure, and bleeding may be tried when all other remedies have failed.

Mostköff, A.: **Contribution to the Question of the Action of Ichthyol in Pulmonary Tuberculosis.** (*Der Kinderarzt.* Vol. xiii., No. 9.)

For more than two years the author has used ichthyol in cases of tuberculosis, and has never encountered any unpleasant gastrointestinal symptoms as the result of its administration. Pure ichthyol is mixed with an equal quantity of water, and five to thirty drops of the mixture are given in black coffee or in wine, three times a day, after meals. In all, 50 cases were treated. In mild and moderately severe cases marked improvement of the general condition, as well as of the local symptoms, resulted. The appetite was apparently increased, a marked contrast to the effect of creosote or guaiacol.

Ichthyol appears to be an excellent help in the treatment of tuberculosis, especially in country practice where no very effectual hygiene is possible.

Shattuck, F.C.: **Prognosis and Treatment of Tubercular Peritonitis, as Based on the Experience of the Massachusetts General Hospital for the Past Ten Years.** (*The American Journal of the Medical Sciences.* Vol. cxxiv., No. 1.)

From 1889 to 1900 98 cases of tubercular peritonitis were treated in the hospital, and the end result is known in 57. Six were less than five years old, 13 under ten and 21 under fifteen. The youngest case was thirteen months of age. The main therapeutic lessons derived from the analysis are: Tubercular peritonitis may be followed by apparently complete recovery, even if complicated by tuberculosis elsewhere, either under (*a*) purely medical treatment; (*b*) tapping; (*c*) incision. As in other forms of internal tuberculosis, good hygiene is all important; consequently no patient should be kept in the hospital longer than is necessary. We are warranted in trying medical treatment for a time, especially under first-rate hygienic conditions, tapping the abdomen if there is sufficient fluid to cause discomfort. If the patient under a month or six weeks of medical treatment fails to improve, or in even less time if he seems to be losing ground, surgical treatment should be advised.

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Original Communications.

THE PROGNOSIS OF TUBERCULOUS PERITONITIS IN CHILDREN.*

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The prognosis in tuberculous peritonitis is a subject on which many and diverse views have been expressed. The great question as to whether the disease tends to run a favorable or an unfavorable course may be said to be still unsettled. Twenty-five years ago the prognosis was regarded as hopeless. Ten years ago it was considered more hopeful, especially under surgical treatment. Today we are still searching for more light, and although extensive statistics have been compiled on the Continent, which have considerably influenced opinion in this country, there are comparatively few published from English hospitals.

I propose to limit my remarks on prognosis to the results of a study of 41 cases of tuberculous peritonitis treated as in-patients at the Paddington Green Children's Hospital. These represent all the cases of that affection which are available for statistical purposes from that hospital, a few having been rejected, because the diagnosis was uncertain or the period of observation was too brief.

The first important point in the prognosis is to ascertain the proportion of recoveries to deaths. In forty-one cases there are twenty-nine recoveries, or 70.7 per cent.; one unrelied, or 2.5 per cent.; eleven deaths, or 26.8 per cent.

If the results of medical treatment are compared with those of surgical treatment, the statistics are, as follows:

*Read before the Society for the Study of Disease in Children, London, December 12, 1902.

Of those medically treated (27 cases) twenty-two recovered, or 81.3 per cent.; one, or 3.7 per cent. was unrelieved, and four, or 15 per cent., died. Of those surgically treated, (14 cases) seven, or 50 per cent., recovered, and seven, or 50 per cent., died.

In the case of a chronic affection like tuberculous peritonitis it can hardly be deemed correct to use the term "recovery," when the patient leaves the hospital or convalescent home; "apparently on the road to recovery" would be as far as one could safely go. The cases therefore have been followed up, as well as possible, after leaving the hospital and the statistical results, both favorable and fatal, are drawn up, after keeping the patients under observation for the longest possible time. The cases which are entered as "recovered" were under observation for the following periods: under three months, 2; from three to six months, 7; from six to twelve months, 1; from one to two years, 4; from two to three years, 4; from three to four years, 1; from four to five years, 4; from five to six years, 3; over six years, 3; making a total of 29.

Considering the number of cases which were under observation for a year or longer, namely, nineteen, or 65.5 per cent., it will perhaps be admitted that the term "recovery" is justified. Further, in those cases the signs of active disease had ceased, the traces of local disease had become less evident with each succeeding year they were observed, and the general strength seemed steadily to improve.

THE NATURAL COURSE OF TUBERCULOUS PERITONITIS.

Tuberculous peritonitis in its uncomplicated form is an affection which lasts usually for from six months to a year, or longer. The natural course of the disease in a fairly healthy child would appear to be toward ultimate recovery. Perhaps in no form of tuberculosis does nature make greater or more successful efforts to cope with the disease. The formation of fibrous tissue is nature's method of shutting up the tubercles, cutting off their supply of nourishment and starving them out. When their vitality has gone and all other peritoneal tuberculosis has ceased, nature next directs the powers of the body to the absorption of the dead tubercles and the fibrous tissue surrounding them. Sometimes the effort is completely successful, sometimes the absorption is only partially complete, and sometimes complications

arise from outside causes, which put an end to the process. If this process of fibrosis is to be regarded as the natural course of the illness toward a favorable issue, the prognosis will depend on the patient's powers of furthering it. Consequently a strong family history of tuberculosis, or an infancy passed under bad hygienic and dietetic conditions, or a constitution of feeble resistant power, or a history of one or more severe attacks of infective fever during early life must be regarded as a factor which influences unfavorably the prognosis in any given case.

THE PROGNOSIS IN UNCOMPLICATED TUBERCULOUS PERITONITIS.

The disease presents itself under various clinical aspects. There may be an acute onset with typhoid symptoms, followed by a very severe illness, characterized by ascites, abdominal distention, diarrhea or constipation, and high temperature. Although one would hesitate to speak decidedly during the acute stage of the illness, it is not uncommon for such cases to terminate in complete recovery. Most of the cases begin insidiously. The ascitic type, in which fluid is poured out more or less freely, owing to the irritation produced by many scattered tubercles, is one in which the prognosis is favorable, if it is succeeded by a fibroplastic formation, which is the natural termination. Those cases in which the fibroplastic formation is active from the start do well as a rule. Cases of tumor formation, rolled-up omentum, or puckered-up mesentery, or matted intestine, may present no other symptoms, are extremely chronic, and usually terminate favorably. A common clinical type is that in which tuberculous pleurisy is an associated condition and the prognosis does not appear to be unfavorably influenced by this association.

Various symptoms in the course of the disease affect the prognosis. A favorable condition may be said to be present, when the temperature is subnormal, or normal, or only slightly raised, and even when there is a considerable evening rise to 102° or 103° F. It is wonderful how well and how long the patient will hold his own, provided there is a daily remission and apyrexial period. On the other hand continuous pyrexia, even of moderate degree, is unfavorable, is usually accompanied by progressive loss of strength, and is suggestive of some complication. A continuously rapid pulse, over 110 per minute, is to be regarded as indicative of acute abdominal disease and is of unfavorable prog-

nostic signification. Diarrhea, when prolonged, is of bad omen and suggests one of the gravest complications, tuberculous ulceration of the bowel. Great distention of the stomach and intestines, when paralytic in origin, is of unfavorable significance; when it is obstructive in origin, it may be amenable to surgical treatment. Rapid wasting must be looked on as an indication that the disease has gained the upper hand locally, or is becoming generalized. The defensive powers of the constitution are invariably weakened in the presence of rapid emaciation. Recurrent attacks, with or without marked pyrexia, affect the prognosis unfavorably. They tend to exhaust the resistant powers of the patient and they point to fresh infection from an active, although possibly unrecognized, source.

THE PROGNOSIS IN COMPLICATED TUBERCULOUS PERITONITIS.

The complications which may precede or arise from tuberculous peritonitis seriously affect the prognosis and one or more of them will usually be found to be present in the fatal cases.

(1) Tuberculous ulceration of the intestine. This may be small in extent and not associated with any marked symptoms. When it is extensive, as indicated by intractable diarrhea and the passage of blood and mucus, the prognosis is unfavorable.

(2) If extensive caseation of the mesenteric lymph nodes or of tuberculous masses exists, recovery is delayed, fresh infection of the peritoneum is apt to occur and the risk of abscess formation and rupture is constantly present.

(3) Localized suppuration, from infection through glands or the intestine, is a complication which, if unrelieved by surgical treatment, is apt to retard recovery and lead to still more serious complications.

(4) Obstructive symptoms from intestinal matting or the pressure of tuberculous growths are as a rule not marked. If they are progressive and unrelieved, the prognosis is bad, but surgical interference may prove successful in removing all imminent danger.

(5) In the presence of pulmonary tuberculosis, with definite physical signs, the prognosis is unfavorable. It must be remembered, however, that dullness and crepitations are frequently present at one or both bases, owing to the diaphragm being pushed upwards, the lower portions of the lungs being thrown out of action, and congestion occurring in consequence. With the relief

of the abdominal distention, these pulmonary signs will usually disappear entirely. The prognosis is very bad in the case of the following complications:

(6) The rupture of an abscess of the lymph nodes or other abscess, or the perforation of an intestinal ulcer into the general peritoneal cavity.

(7) The onset of tuberculous meningitis.

(8) The occurrence of general miliary tuberculosis.

As confirming the serious prognostic influence of the various complications the causes of death in the fatal cases may be given here. Six of the 11 cases were examined postmortem.

Purulent peritonitis from intestinal perforation or ruptured abscess, 5 cases; intractable diarrhea (intestinal ulceration), 2 cases; with cerebral symptoms (tuberculous meningitis), 2 cases; tuberculosis of peritoneum, pleura and lung with partial intestinal obstruction by a band, 1 case; cause unknown, 1 case; total, 11 cases.

THE PROGNOSIS AS AFFECTED BY MEDICAL TREATMENT.

The results of medical treatment as given above may be regarded as favorable. If the prognosis in complicated tuberculous peritonitis depends on improving the patient's resistant powers as much as possible, until the tuberculous process is checked, and increasing his aggressive powers, until the tuberculous products have been entirely removed, it is plain that medical treatment directed to these ends will be of the highest importance in making the prognosis more favorable. In the complicated forms of the disease medical treatment is of less direct value.

THE PROGNOSIS AS AFFECTED BY SURGICAL TREATMENT.

In the complicated forms of tuberculous peritonitis the prognosis is much more serious and here it is that the prospect may be entirely changed by surgical interference. One striking case is before me, that of a girl of three years, on whom Mr. Watson Cheyne performed laparotomy for obstruction and short-circuited the small intestine. The patient made an excellent recovery. In another case, with suppurative peritonitis from a perforation of the cecum, a fatal termination ensued.

As regards the surgical treatment by simple laparotomy, the so-called cure for tuberculous peritonitis, our results are not good, namely, six recoveries and six deaths. It is not suggested that

the fatal results were due to the laparotomy, for the deaths occurred at periods of from one to six months after the operation. But it is clear that the operation was ineffectual in preventing the complications which lead to a fatal termination. The cases which recovered may be said to have done so in spite of the operation, for they presented in their post-operative stages no striking changes and no clinical developments which could not be equally well observed in the cases treated medically. At one time I was a supporter of laparotomy as a routine treatment, but further experience has altered my opinion. A girl of six years, the subject of fibroascitic tuberculous peritonitis was considered a suitable case for laparotomy, but operation was deferred for unavoidable reasons and she was sent to the country. While she was there, the abdominal contents became harder and denser, until they felt like plaster of Paris, the fluid disappeared, and the girl improved. Some months later she was so much better that operation was not considered necessary and during the next year there took place a gradual absorption of all the dense material, until finally she was quite restored to health and the abdomen to a normal condition. In other cases before me, cases of acute tuberculous peritonitis, of tumor formation, of the ascitic type, and of the fibrous variety, I find that as good results may follow from medical as from surgical treatment and I do not find that the course of the disease is appreciably affected by laparotomy. From the autopsy evidence also it is plain that, whether the case was medically or surgically treated, death was not due to uncomplicated tuberculous peritonitis, but to some complication beyond relief either by medical measures, or by laparotomy.

The conclusions drawn above may be summarized as follows:

(1) In uncomplicated tuberculous peritonitis the prognosis is good.

(2) When tuberculous pleurisy is present, the prognosis is still favorable.

(3) The prognosis is rendered less favorable in the case of (a) a strong family history of tuberculosis; (b) an infancy passed under bad hygienic and dietetic conditions; (c) a constitution of feeble resistant power, or (d) a history of severe infective illness in early life.

(4) The prognosis is rendered less favorable in the presence of one or more of the following symptoms:—continuous pyrexia,

rapid wasting, persistent diarrhea, rapid pulse, or recurrent acute exacerbations.

(5) The prognosis is rendered less favorable in the presence of one or more of the following local complications: (*a*) tuberculous ulceration of the bowel; (*b*) extensive caseation of the mesenteric lymph nodes, or of tuberculous masses; (*c*) localized suppuration from infection through lymph nodes, or the intestine; (*d*) obstructive symptoms from bands or matting of the intestine.

(6) The prognosis is bad in the case of the following complications: (*a*) the rupture of a suppurating lymph node, or the perforation of an intestinal ulcer into the peritoneal cavity; (*b*) pulmonary tuberculosis; (*c*) tuberculous meningitis; (*d*) general miliary tuberculosis.

(7) In tuberculous peritonitis the prognosis is not appreciably affected by simple laparotomy.

Pathology of Amaurotic Family Idiocy.—The case studied by K. Schaffer (*Wien. klin. Rundsch.*, April 20, 1902) was a girl, sixteen months old, of Jewish parentage, whose birth was normal. When she was ten months old the extremities became rigid and a well-marked apathy developed. The presence of a cerebral diplegia could be determined, with contracture of the flexors of the upper extremity. The ophthalmoscope showed the typical picture: Both papillæ were normal, but in the region of the macula there was a bluish-gray spot, the size of two optic disks in diameter, with indefinite margins and a red center. The family history was negative, and all brothers and sisters were healthy. Death occurred in a few days; an autopsy was performed, the brain and spinal cord being carefully examined. Macroscopically, no abnormalities were evident, but Weigert's stain revealed extensive degeneration in the cortex of the cerebrum and in the lateral pyramidal tracts of the cord and only the ascending spinal, bulbar and cerebellar tracts approached normal.—*Medical News.*

The Formation of Film on Heated Milk.—In the *American Journal of Physiology* for July, 1902, Rettger presents a study on this subject with the following brief summary:—(1) The formation of film on heated milk is dependent upon proteid in the milk. (2) This proteid is caseinogen. (3) The presence of fat facilitates film formation, but is not essential. (4) While surface evaporation facilitates film production, it is not necessary.

THE EFFECTS OF TIGHT DIAPERS.*

BY A. C. COTTON, M.D.,

Chicago, Ill.

The main object of this paper is to deal with some of the disadvantages of the clothing of infants and to advance a few suggestions as to the best means of obviating them. One of the first apparent disadvantages is the discomfort of clothes to the infant and the annoyance incident to its manipulation. After food and warmth, the prime essential for the infant's welfare is rest. Clothing that requires frequent or prolonged handling, which causes discomfort from constriction or pressure, or from skin irritation, which induces fatigue by weight or constraint, or causes overheating or exhaustion, is familiar to us all. It does not allow the infant to rest.

Clothing may interfere with functions, as of respiration by compression of the thorax; of circulation, by constriction of the blood vessels and by restrained muscular movements; of digestion, by interfering with gastric and enteric peristalsis with resulting fermentation, constipation and their train of evils; of elimination, by deficient skin ventilation; of voluntary muscular action, by restraint which prevents absolute freedom of the extremities.

There is no doubt that improper clothing not only may interfere with growth from impairment of function, as above claimed, but it may also cause actual deformities from undue pressure upon plastic tissues in their formative states.

The misshapen head, due to the infant's inability to change position because of its clothing, is not infrequently seen. The constricted chest with undeveloped lungs may not be due solely to rachitis, but to compression. Constriction of the abdomen may favor hernia, permanent gastric and intestinal dilatation, deformed liver with its chondral grooves and atony of all the muscular structures.

That a diaper of unyielding material pinned firmly around the hips of a young infant will compress the pelvis, reducing the diameters is susceptible of demonstration, as may be seen in the accompanying skiagrams, A1 and A2, made from the same subject (See Figs. A1 and A2.)

*Read before the American Pediatric Society, Boston, May 26, 27, 28, 1902.

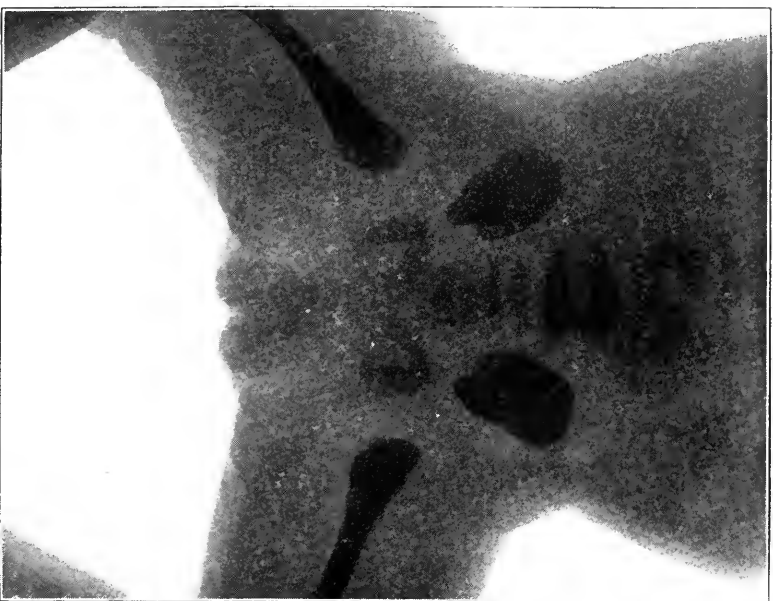


FIG. A1.—NORMAL INFANT PELVIS.

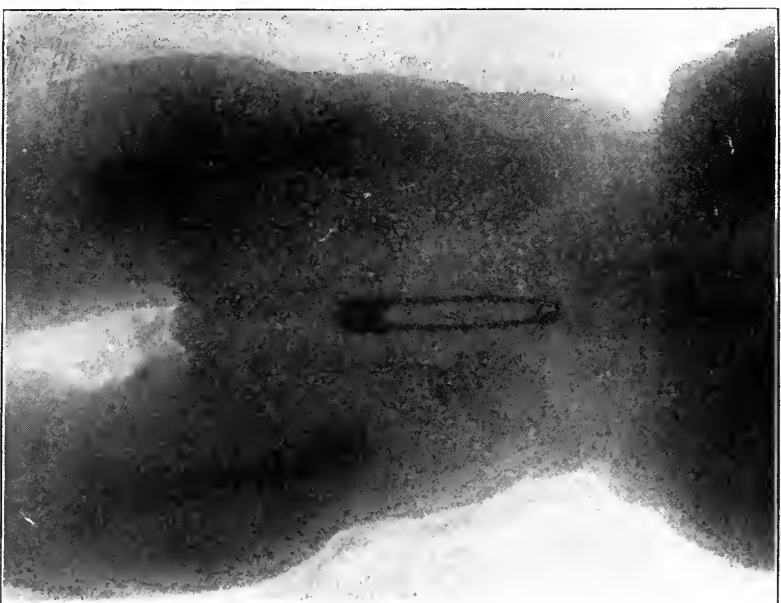


FIG. A2.—SAME PATIENT AS A1; SHOWING EFFECT OF TIGHT
DIAPER ON PELVIS.

The effect of such compression applied continuously throughout the first year of life, it seems reasonable to assume, would be a retardation of pelvic development, if it does not cause a disproportion of the relative dimensions. No one doubts that the thorax may be constricted in growth by prolonged compression. The effects of this compression are also shown by the x-ray in skiagrams B1 and B2. (See Figs. B1 and B2.)

If this be true of the thorax with its resilient and expansive viscera, how much more pronounced must be the permanent effect upon the pelvic framework with its non-resilient contents?

The ordinary diaper of twilled cotton flannel, firm and unyielding, folded many times, tightly drawn and pinned about the iliac crests to prevent slipping, we know too well. The tension of this ceinture is notably increased by the frequent wetting to which it is subjected. May we not establish a causative relationship between this commonest American diaper and the most frequent American pelvic deformity? Obstetricians are agreed that the dystochias in this country are largely due to justominor pelvis. Is there any reasonable doubt that continuous ceinture of the pelvis during the first two years, before ossification has progressed far, will produce the justominor pelvis in women?

The great plasticity of the infant pelvis is easily seen in the moist specimen of a full term infant I now show you. When we remember that the complete pelvis is the result of development from fifty-five centres of ossification, in about a third of which the process has not even yet begun at birth, while from no one of the remaining centres has ossification proceeded to completion, that a large amount of pelvic structure, subsequently to become bone, is purely cartilaginous, the plasticity of this foundation structure of the skeleton is appreciated. Is there any doubt that continuous compression in this stage must inhibit growth? All analogies point to the contrary conclusion.

The practice, also, of wadding a large amount of inelastic material tightly between the thighs (which serves as a fulcrum when the lower extremities are firmly bound in apposition by the pinning blanket or other swaddling clothes) tends to cause deformity of the femora. This is seen in the incurvation shown by skiagrams C1 and C2. (See Figs. C1 and C2.)

There is little doubt in the mind of the writer, that many cases of genu valgum have their beginning in this cause. The alignment of the articulating surfaces being thus easily disturbed, the



FIG. B1.—NORMAL INFANT THORAX.

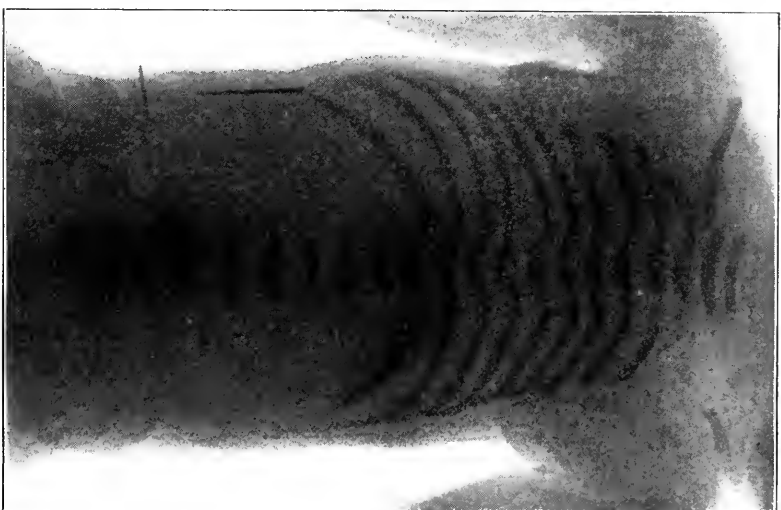


FIG. B2.—SAME PATIENT AS B1; SHOWING THE EFFECTS OF COMPRESSION OF THE THORAX.

defect is naturally progressive, with the superincumbent weight of the growing body, until the age of complete ossification when the bones and joints show permanent deformity. (See Figs. C1 and C2.)

To obviate these defects the diaper should be light, with no more material than is absolutely necessary for the absorption of discharges. Absorbent cotton, either loose or in pads, preferably the latter, retained by a T bandage or triangle of some flexible material, such as cheese cloth, secured by safety pins to the shirt, before and behind, has been found to meet all the requirements.

The most prevalent method of clothing infants in continental Europe and some parts of Asia is seen in the "swaddling clothes" retained by a gasket or knitted band around the body. This binds the arms close to the body and the legs straight and in close apposition. This custom is also seen in this country in some families of foreign born people. In many instances the gasket is so closely applied as to restrain all voluntary movements except of the face.

The old-fashioned English and American costume consists of a short, sleeveless linen shirt; the "pinning blanket" or "barrow coat," a straight, firm waist band of cotton cloth, to the lower edge of which is gathered a long flannel breadth, extending eighteen to twenty-four inches below the infant's feet. The band is pinned smoothly and tightly around the thorax and the lower flannel portion folded together and brought up and secured by pins. This is followed by the regular skirt composed of flannel amply shirred to another waist band, which is also tightly pinned. Over this is a cotton or wool slip, with or without sleeves, which adds weight to the already crushed infant. Often a crocheted or knitted jacket is worn outside.

In recent years many intelligent nurses have adopted a more hygienic clothing, of which the "Gertrude suit" is a good illustration. This consists of three garments, neither close fitting shirt nor binder being used. All these garments are cut in the princess style, supported from the shoulders and extend well below the feet, the inner and outer garments having sleeves to the wrists. To this may be added short socks, and moccasins in cold weather.

To secure the benefits of clothing, and at the same time freedom from its injurious effects, is a problem, the solution of which is widely sought. The ideal protection would seem to be afforded by a large blanket of light, flexible, non-conducting

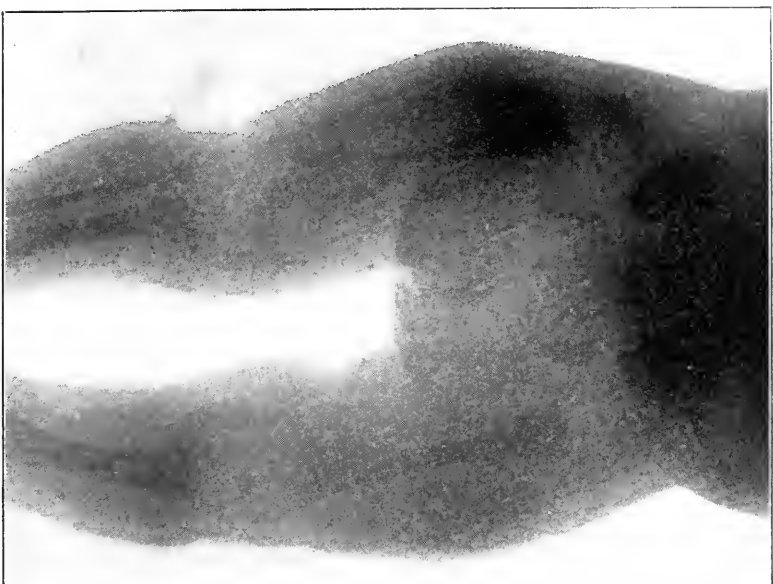


FIG. C1.—NORMAL INFANT; PELVIS AND THIGHS.

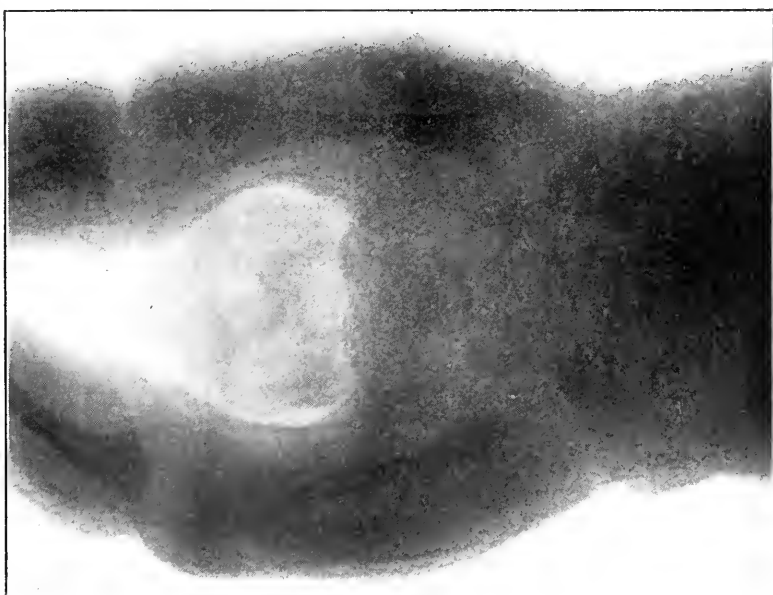


FIG. C2.—SAME PATIENT AS A1; SHOWING DEFORMITIES PRODUCED BY A WAD OF DIAPER BETWEEN THE LEGS.

material enveloping loosely the entire infant below the neck, but his normal restlessness makes it difficult to keep him within the folds of this covering. A more definite garment that cannot be thrown off, while still allowing unrestrained freedom of necessary movements, was shown by the writer before the Pediatric Section of the American Medical Association at Baltimore in 1890, and also presented by invitation to the *Société d'Hygiène Française* at Paris in 1897. This garment is in use in the infant wards of some of the hospitals of Chicago and other cities. It is a bag, so constructed that it envelops loosely the entire body below the chin, closure being secured above by safety pins and below by a draw string. Additional protection against cold is afforded by separate under garments, such as a light knitted shirt of silk or wool, free from seam or band, and one or more sleeveless slips, as occasion may require.

The Malignancy of Joint Tuberculosis; Illustrated by a Series of Forty-seven Cases.—Painter (*Boston Medical and Surgical Journal*, January 8, 1903) from his study of the subject, reaches the following conclusions: Tuberculous disease tends to recur after apparent cure in a considerable proportion of cases. This recurrence is most commonly a local one. Metastases are not common. Trauma, direct or indirect, is frequently associated with the recurrence. Indirect trauma is probably the exciting cause of the recurrences, especially when partial ankylosis or deformity exists. Patients who have suffered from bone and joint tuberculosis should be cautioned that they are not well when symptoms have ceased, and that reasonable care must be exercised to avoid recrudescences. Deformity and shortening should be corrected as far and as accurately as possible, to lessen the chance of recrudescence. Mechanical treatment, especially fixation, should be used in the acute conditions in childhood. Exploratory interference, where discretion is used, with the view to removal of isolated foci, is advisable in many cases in children, and is to be urged in the majority of recrudescences if seen early. Recognition of the fact that patients with hip disease, Pott's disease, and tumor albus have tuberculosis just as much as if they had phthisis, and should be treated accordingly, must be insisted upon.

TWO INSTRUCTIVE CASES OF CEREBRAL PNEUMONIA, AND THEIR TREATMENT.

BY LOUIS FISCHER, M.D.,

Visiting Physician to the Willard Parker and Riverside Hospitals, New York.

This disease is called cerebral pneumonia because, added to the pulmonary symptoms of the existing pneumonia, there are distinct meningeal symptoms. When pneumonia affects the upper lobe of the lung, so-called apical pneumonia, then frequently meningeal symptoms coexist. In addition, however, severe types of infection involving several lobes of the lung may cause such a profound toxemia that meningeal symptoms without a distinct meningitis can be diagnosed. The following cases will illustrate the above condition.

CASE I.—Baby E., about six months old, a nursing baby, was seen by me in January, 1902, in consultation with Dr. Osias. The history was as follows: The child had been ill for several days, was restless and feverish, and had vomited. The stools were greenish and contained a large quantity of cheesy curds, in addition to mucus. The abdomen was slightly retracted, the extremities were cold; there was no edema present. The child did not seem to take the breast very well and vomited frequently after nursing. The temperature was $102.4-5^{\circ}$ F., per rectum, pulse 140, respiration 44. Unilateral spasms with twitchings of the muscles of the shoulder, arm, leg, and foot were constantly present. Twitchings of the muscles of the eye and a constant rolling of the eyeball were noticed; the head was thrown backwards; the muscles of the neck were rather rigid, although there was no distinct opisthotonus. The spasms were confined to the right side of the body; the knee jerk at the patella was absent on the right side; the plantar reflex on the right side was slightly present; the patellar reflex was normal on the left side and the plantar reflex was more distinct; the pupils responded very sluggishly and were unusually large; this dilatation of the pupils persisted through the whole illness, until convalescence was established. The examination of the thorax showed intense pulmonary congestion; there was slight resistance on percussion and marked dullness. Judging from the ratio between the pulse and

the respiration, the diagnosis of pneumonia was hardly possible. The physical signs on auscultation showed bronchial breathing and a distinct crepitant râle. The diagnosis of cerebral pneumonia was made, although meningitis *per se* was excluded.

The treatment was directed to a relief of the pneumonic infection. Expectorants, in addition to inhalations of steam, were ordered. Cold compresses were used as antipyretics, and castor oil or calomel was given to cleanse the gastrointestinal tract. The disease progressed; the temperature increased and rose to 103.4-5° F. on the following day, and to 104.2-5° F. on the third and fourth days. With the rise of temperature the pulse rate was increased to 140, respirations to 52. On the fifth day of the disease there was a marked somnolence, stupor and partial coma. The head now showed a distinct opisthotonus; the sternocleidomastoids were very rigid; the pupils were both dilated and the convulsions continued as before. Leeches were applied over the mastoid portion of the temporal bone to relieve the cerebral congestion; the scalp was freed from hair and iodoform collodion of a 10 per cent. strength was painted on the occiput; ice bags were applied over the whole of the cranium as well as to the nape of the neck, mustard foot baths were given frequently and afforded some relief, when the spasms were severe. An enema consisting of chloral hydrate and sodium bromid, five grains each, with one ounce of starch water was ordered. This was to be repeated every three hours until the spasms ceased. Before injecting the above drugs both the rectum and the colon were flushed with a soap-water enema.

On the seventh day of the disease there was a distinct crisis, inasmuch as the temperature dropped from 104° to 97°, a drop of 7 degrees. (See Chart I.) Stimulating expectorants were then ordered in the following manner:

R_x—

Ammon. Carb.	1.0
Syrup. Pruni Virgin.....	15.0
Aquæ Camph. q. s. ad.....	60.0

M.

Half a teaspoonful of this was ordered every two hours. The child's convalescence continued. Things looked apparently well; the pneumonia completely subsided; resolution set in; the spasms, which had been so disagreeable and persisted, also stopped. The child commenced to show signs of consciousness,

played, laughed and cooed; the stools, which had been so greenish and curded, assumed a more natural yellowish color and pasty consistency. The appetite seemed to return; the infant nursed

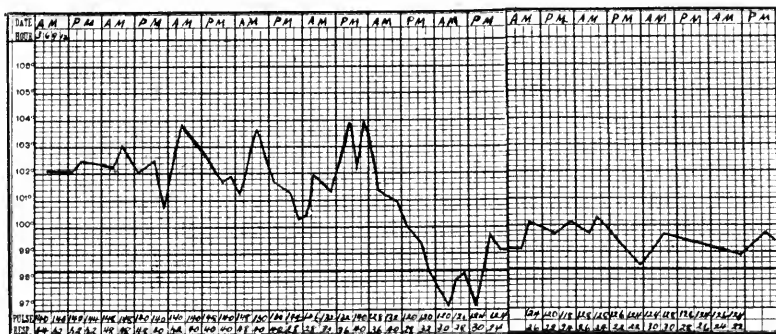


CHART I.—A CASE OF CEREBRAL PNEUMONIA.

better, the nights were more comfortable, and the child slept from one feeding time until the next.

Several weeks after the child's recovery, on February 27th, a local inflammatory condition was noticed. The child's temperature suddenly rose to 102° F. and on February 28th the temperature was 104° F., pulse 120, respiration 28. (See Chart II.)

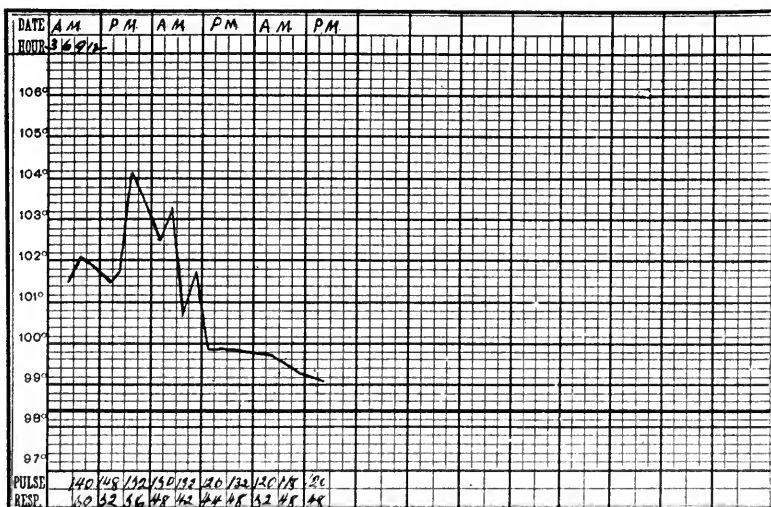


CHART II.—SHOWING SECONDARY FEVER DURING CONVALESCENCE FROM PNEUMONIA,

The physical examination of the thorax showed both lungs normal. No pathological lesion could be detected, so that the lungs were excluded as a cause of this sudden febrile disturbance.

Empyema was suspected, but nothing pointed to this condition. After excluding the stomach, liver, intestines, spleen and other organs as a probable cause of the fever, there remained but one thing to note; viz., swelling of the neck due to enlarged nodes. There was regurgitation of fluids through the nostrils. As the child cried while nursing, dysphagia was suspected. In the throat on the right side a swelling was detected which gave evidences of fluctuation and which proved to be a retropharyngeal abscess. The external lymph nodes were very much swollen. The abscess was incised and the child made an uninterrupted recovery.

Malt extract and cod-liver oil in addition to other restorative treatment were given. Iodid of sodium was given in two to three grain doses several times a day and seemed to exert a very marked effect on the swollen pharyngeal mucous membrane.

CASE II.—Hannah T., seven years old, was taken sick with fever, complained of being tired, and was very thirsty. She had anorexia and was inclined to constipation. She also complained of headaches. When first seen by me her temperature was 103.4° F. in the mouth, the pulse 168, respiration 34. She had a very coated tongue; the throat was dry, there were no patches visible. There was no history of exposure to contagious diseases; a gastric catarrh was suspected. The respiration and pulse ratio suggested a pulmonary complication.

The physical examination of the thorax gave no evidence of consolidation, merely roughened, harsh breathing, some rhonchi and slight resistance on percussing the right apex anteriorly. No diagnosis except "fever" was made. I ordered calomel one grain with powdered rhubarb three grains. Citrate of magnesia was given for the thirst. A fluid diet, consisting of equal parts of seltzer and milk, with sponging of the chest with alcohol and water every hour, and cool cloths, moistened with evaporating lotions like bay rum or Florida water, to the forehead were also ordered.

I examined a specimen of urine which contained nothing abnormal. On the following morning, twelve hours after my first visit, the temperature by rectum was 104.4° F., pulse 172, respira-

tion 68 while asleep. The bowels had been thoroughly cleaned, still there was no evidence of pneumonia, but the child seemed to be greatly depressed. There was marked apathy; the child was very restless and had not slept. Constant twitchings of the muscles of the face and extremities occurred; the child cried out while in the stupor, refused food, attempted to bite and screamed loudly. The patellar reflexes were both present, the pupils reacted normally, the head was not retracted nor were the muscles rigid. There was no opisthotonus; the child could be roused by loud talking, or by being touched. The temperature in the evening was 106.2° F. by rectum, the pulse 124, respiration 40. One drop doses of tincture of aconite were given every hour for eight hours and had no effect on the temperature, but did seem to reduce the pulse rate and steady the heart's action.

The cold pack was ordered to be renewed every half hour to reduce the temperature until the temperature dropped to 102° F. Freshly prepared spiritus mindereri, one-half teaspoonful every half hour until the temperature remained at 102° F. was also ordered. Warm mustard foot baths were ordered to stimulate the circulation, and whiskey with milk (5i to ʒiv), whenever possible. No distinct evidences of pneumonia were obtained on auscultation or percussion. (See Chart III.)

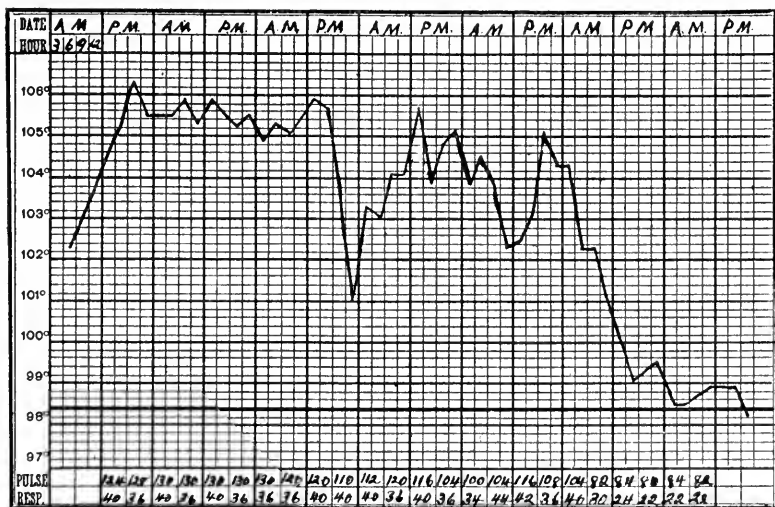


CHART III.—CEREBRAL PNEUMONIA WITH HIGH TEMPERATURE AND MARKED FALLS OF TEMPERATURE AFTER COLD BATHS.

The temperature continued to rise, until 106° F. was reached. Dry cups were applied over the posterior portion of the lungs, also an ice cap to the head. Flushings of the colon with water at a temperature of 60° F. were also ordered, to be repeated every three hours. These seemed to have a very soothing effect on the nervous system. The child was much quieter after them and the temperature was gradually lessened.

Frequently after a cool tub bath, combined with a cold pack, the temperature dropped three to four degrees. (See Chart III.) Creosote carbonate, in three drop doses, was ordered every three hours, to be given in milk, soup or chocolate. This dose was increased gradually by the addition of one drop each day, until the child received ten drops every four hours. No systemic disturbance was noticed, there was no discoloration of the urine and no toxic symptoms resulted from the creosote treatment. A decided antithermic effect without cardiac depression was noticed. (A convenient way of giving the creosote is to add the drops to some Tokay wine or to combine it with whiskey and water.)

Creosote steam inhalations were also ordered. Beechwood creosote, about a teaspoonful to a pint of boiling water, was permitted to steam on a table several feet from the patient. This powerful vapor soon impregnated the air so that the creosote could be smelt throughout the whole apartment. It certainly acted very well, not only on the temperature but also in loosening viscid expectoration.

The vital point in the treatment consisted in giving a supporting diet, consisting of eggs beaten up with sugar and Tokay wine, concentrated soups, and milk predigested with peptonizing powder. Malt extract was given as a restorative and also for its diastasic effect. The treatment was continued, until the child's temperature remained normal for several days, when all forms of creosote were discontinued.

It is interesting to note that very great depression of the nervous system, violent twitchings of the muscles and talking aloud while asleep, continued for several weeks after convalescence was established. The child slept at least twenty hours out of the twenty-four for fully one week. It was at times difficult to arouse her to take nourishment. This great stupor after the convalescence was established was evidently due to the profound toxemia which existed. The urine, which was frequently ex-

amined, showed an excess of phosphates, gave a strong diazo-reaction, but contained no albumin nor sugar. The child was discharged after eight weeks and is in good health today.

The following symptoms were the most noteworthy in the 2 cases reported:

(a) Unilateral spasms, twitchings of the muscles of the shoulder and the arm, and of the leg and foot, were constantly present. (b) Twitchings of the muscles of the eye and a constant rolling of the eyeball. (c) The head was thrown backward. (d) The patellar reflex was absent on the affected side. (e) The plantar reflex was slight on the affected side. (f) Distinct evidences of pneumonia, bronchial breathing and marked dullness on percussion. (g) Convulsions and marked stupor later in the disease. (h) When the crisis appeared in the pneumonia, the cerebral symptoms subsided. (i) Marked nervous depression and extreme hyperesthesia of the body, which continued for weeks after all inflammatory symptoms had subsided.

The Heart in Diphtheria.—After mentioning the cardiovascular changes in ordinary case of diphtheria, Girard (*Gaz. Heb. de Med. et Chir.*, October 2, 1902) considers at length the cases in which the heart lesions are so marked as to form really a cardiac type of the disease. Pallor of the face and the mucous membranes is of great value as a premonitory symptom of grave cardiac trouble. Vomiting of the cerebral type is present. The pulse becomes soft, arrhythmic, accelerated. In some cases there is cardiac erethism shown by the exaggeration of the intensity of the heart sounds as contrasted with the extreme feebleness of the pulse. Hemorrhages, as epistaxis, hematemesis and ecchymoses appear. Sometimes a singular apathy of the patient is a premonitory symptom of cardiac involvement. Pain is sometimes very violent, diarrhetic crises rarely occur. Convulsions and modifications of respiratory rhythm are frequent. Prognosis is most grave when these symptoms are marked. The pathologic anatomy of the heart is given, as also are the histologic lesions. Diphtheric endarteritis is exceptional. Nerve lesions play a capital role in the cardiac symptoms of diphtheria.—*American Medicine.*

PILOCARPIN IN THE TREATMENT OF SCARLET FEVER.*

BY E. W. SAUNDERS, M.D.,

St. Louis, Mo.

This drug has undergone many vicissitudes in the favor of the profession, but for a long time it has been in disrepute, owing to the deadly results justly attributed to its use, particularly in eclampsia and in the later stages of diphtheria.

In another paper† the subject of its advantages and its dangers in many diseases has been fully discussed, but here I wish to confine my attention to its use in scarlet fever, after giving a short account of its physiological effects, and the contraindications to its use in practice.

The physiological effects of pilocarpin are exerted chiefly upon the glandular structures of the secretory organs in the following order of frequency and potency: the salivary, the muciparous, the mammary, the sudoriferous, the lachrymal, the renal. Vomiting is a frequent effect, and then not only are the contents of the stomach together with saliva, which has been swallowed, ejected, but also a large quantity of mucoserous fluid secreted by the stomach itself. With a few people pilocarpin acts as an instantaneous emetic by virtue of contact with the stomach walls. The pulse, after full effects are obtained, is slower, thinner, and more compressible. The respiration is retarded and more superficial in character. Occasionally amblyopia is observed, lasting for an hour or more. In some cases, especially where a sthenic fever is present, or where an insufficient dose has been given, an increase of the pulse rate and a flushing of the whole surface may be observed as a primary effect and this may be the only result obtained. Fever exerts an inhibitory effect upon the normal physiological manifestations, and hyperpyrexia may altogether abolish them; an effect, however, not confined to pilocarpin, but observed, as all clinicians will testify, in the case of several other drugs, especially those belonging to the class of hypnotics or anti-

*Read by title before the American Pediatric Society, Boston, May 26, 27, 28, 1902.

† *Therapeutic Gazette*, April, 1898.

pyretics. In its effects upon the kidneys it is ordinarily found that the solids alone are increased, but very exceptionally a polyuria is produced. Incidentally the growth of the hair is stimulated. Whether any of the internal secretions are increased is a matter of speculation, but an enhanced leukocytosis is an invariable effect, with exalted alexin formation, and most probably there is an increased activity of the toxilytic function of the liver.

It follows from the foregoing sketch, reinforced by many sad clinical experiences, that this powerful drug should not be used under the following conditions: coma or threatened coma; cardiac weakness, whether from myocardial degeneration as in typhoid, etc., or from defective innervation, as in diphtheria after the fourth day, or from lack of compensation in valvular lesions, or even when a sound heart is overburdened, as in pneumonia after the initial stage. Likewise wherever there is the least embarrassment of the respiratory function, from whatever cause, the administration of pilocarpin is fraught with danger. Lastly in the very young, in the aged, and in all cases of prolonged disease, or inanition, where the system cannot safely withstand the least depression or serous drain, the drug should not be employed.

The peculiarly beneficent effects of pilocarpin in scarlet fever are due to its effects upon the salivary and muciparous glands, coupled with the absence, generally speaking, of all tendency to myocardial or neural degeneration, and of pulmonary complications. The researches of the Pasteur Institute have well established the fact that of all the secretions, the saliva possesses the greatest toxilytic power. Therefore, whenever we can bring the saliva to play directly upon the toxins at the site of their production, we do the second best thing ideally, and the best thing practically. Not only so, but the saliva, being a normally albuminous fluid, furnishes a valuable vehicle for the excretion of toxins, which are unable to escape, as such, by any other normal route.

Whilst the saliva and the mucus are neither of them germicidal, the constant moistening of the mucous surfaces by their own secretions keeps them in the best possible condition for defense against invasion, especially of the deeper structures. Whilst I regard pilocarpin as the most valuable single agent against scarlatinal infection, or, more strictly speaking, against the associate infections, which are probably the more pernicious, I do not by any means limit myself to its use.

In hyperpyrexia hydrotherapeutic measures are our first resource, to be followed up by the administration of pilocarpin. Even at ordinary temperatures, such as 104° F., it is better to precede each dose with a thermolytic bath. Chloral is nearly always indicated and moderate doses, frequently repeated, are best. Each dose may procure not more than one hour's sleep. The coal tar antipyretics should not be given immediately in conjunction with pilocarpin. The most recent serum treatment promises well, as does the revived nuclein administration, in vastly larger doses than those recommended by Vaughan originally; but to my mind the indications for pilocarpin will still be present, at least at the outset of every severe case of scarlet fever.

The first dose should be watched lest an idiosyncrasy be encountered. If so, then a hypodermic of atropin, "the perfect physiological antidote," will obviate all disagreeable consequences. Subsequent doses should be graduated according to the effect of the first and the height of the temperature. Tolerantion is rapidly established, so that the dose may have to be augmented from day to day. Even where violent vomiting is not produced, the taking and the assimilation of food may be interrupted, so that a continuous effect is not to be sought. However, a parched mouth is never to be allowed during the disease.

The beneficent effects of the drug are, moderate reduction of the temperature (when not hyperpyrexial), relief of suffering due to the parched and fissured mouth and lips, rapid improvement in the state of the oral and faucial mucous membranes, and prevention of glandular infection. If the nasal membrane be infected, there is no good result to be expected, as far as this condition and the subsequent aural complication are concerned.

The Best Method of Administering Aspirin.—In the course of some experiments to determine whether aspirin was best given in powder or in capsule, E. C. Hill, of Denver, Col., records the following:—

M. B. H., seven years old, took 5 grains of aspirin powder 2½ hours after eating; her urine showed the salicylic reaction in 16 minutes, the test proving negative within 17 hours.

The same patient took 5 grains of aspirin in a capsule; this time the salicylic reaction appeared in 20 minutes and went away in less than 18 hours.—*Therapeutic Gazette*, December 15, 1902.

A CASE OF PAROXYSMAL HEMOGLOBINURIA IN A BOY FOUR YEARS OLD.*

BY CHARLES HERRMAN, M.D.,
New York.

Paroxysmal hemoglobinuria is a comparatively rare disease in children. Only about 20 cases have been published. I therefore consider the following case worthy of being reported.

FAMILY HISTORY.—The patient is a boy four years and three months old. The parents have been married six years. Four years before marriage the father had syphilis. He was treated for one year with internal medication. The patient is the only child. The mother has had no miscarriages. The labor was normal.

PERSONAL HISTORY.—At four months of age the patient presented undoubted signs of congenital syphilis. The mother says that the child looked peculiar at that time. He had snuffles, keratitis, and an eruption on the genital region; the soles of the feet were red and shiny, with peeling of the skin; there were rhagades around the mouth. The child was treated for one year with mercury. Marked improvement immediately followed and all the syphilitic manifestations disappeared. At three years he had measles; at four, whooping-cough without complications.

PRESENT HISTORY.—The patient first came under observation on November 14, 1902. He had had attacks of hemoglobinuria during the previous four weeks, sometimes two in one day, latterly three or four a week.

EXAMINATION.—The patient is somewhat undersized, his height is three feet two and one half inches; weight, thirty-two pounds, fourteen ounces. He is anemic. The root of the nose is not depressed. The scars of the fissures about the mouth are still visible. The teeth are carious. A hemic murmur is heard in the neck. The heart and lungs show nothing abnormal. The liver is not enlarged. The spleen can be felt 3 cm. below the free border of the ribs in the anterior axillary line. The appetite is poor, the bowels regular. Examination of the blood shows no plasmodia.

*Read before the Section on Pediatrics, the New York Academy of Medicine, January 8, 1903.

The attacks of hemoglobinuria, usually come on about ten o'clock in the morning. While playing the child becomes peevish and irritable, yawns several times, rubs his forehead, and complains of pain in the head. A chill then sets in, the lips become blue, the face pale, the legs like marble. He then says that he feels tired and wishes to lie down. After sleeping for half an hour, during which time the temperature rises, and the skin assumes its normal red color, he passes a quantity of reddish brown urine and feels very much better. The next urine voided is only slightly colored, with a marked deposit of urates. During an attack the mother has never noticed any edema or any purpuric or urticarial eruption. The entire attack lasts for an hour to an hour and a half. The mother does not think that exposure to cold or walking brings on an attack.

November 14th. The patient is put on "mixed treatment."

November 18th. The patient has another severe attack lasting an hour and a half.

November 23d. A mild attack, while playing. There is slight cyanosis, but no chill; he does not wish to lie down. After the attack he passes a quantity of reddish brown urine.

November 27th. He has a chill with cyanosis, vomiting and fever, after which he sleeps. The day preceding this attack the child received a lukewarm water bath. While in the bath he had a slight chill. This undoubtedly brought on the attack.

December 8th. A slight attack.

December 28th. He has had no attack since December 8th. The spleen can no longer be felt below the free border of the ribs. Hemoglobin, 45 per cent. (Fleischl).

The urine examined following the attack of November 13th showed: Color, reddish brown (the same as solution of bismarck brown), with a brown sediment; acid reaction; specific gravity, 1030. Albumin, $3\frac{1}{2}$ per cent.; (Esbach) no sugar; no indican. Heller's test is positive, with the characteristic deposit, the urine above becoming clear yellow. Hemin crystals are easily obtained by the usual method.

Microscopically there are no red corpuscles, no shadows; a few hyaline and granular casts, and pigment granules. An examination of the urine following the attack of November 18th gives substantially the same results.

ETIOLOGY.—The sexes are about equally affected. The age of the onset of the attacks varies from nine months to nine years.

A distinct history of congenital syphilis is present in about one half the cases. The attacks may be brought on by exposure to cold, not, however, by the eating of cold articles of food, such as cold drinks and ices. The attacks may be produced artificially by cold baths or often by simply immersing one of the extremities in cold water. Physical exertion or emotional shock is also a predisposing cause.

PATHOLOGY.—In a case described by Dieulafoy and Widai, the patient died during the attack. The cortical portion of the kidney was found at the autopsy to be of a dark brown color. Microscopically the glomeruli were normal; the cells of the convoluted tubules and the ascending limb of Henle's loop showed an infiltration with pigment granules, even in the lumen of the tubes.

In Heidenhain's experiment, indigo injected into the general circulation was also deposited in this portion of the kidney. This would give support to the generally accepted theory that the hemoglobinuria is preceded by the presence of hemoglobin in the circulating plasma, that is, by hemoglobinemia.

PATHOGENESIS.—In the production of attacks of paroxysmal hemoglobinuria there are two important factors. First, changes in the blood; second, an increased irritability of the vaso motor system. According to the investigations of Ponfick hemoglobin may enter the circulating plasma in one of two ways, either the red blood corpuscles are broken up and gradually destroyed setting free their hemoglobin, or the hemoglobin is dissolved directly out of the red blood corpuscles, leaving only the framework as a shadow. He has also shown that, for the production of hemoglobinuria, it is necessary that a certain amount of hemoglobin (which he estimates at one-sixtieth of that present in the entire body) should be set free within a comparatively short time.

Among the first to perform experiments on the blood of a patient with hemoglobinuria was Ehrlich. He found that, when a ligature was placed around the finger and cold applied to the part, in the blood drawn the serum which separated from the clot was red instead of pale yellow; that is, a hemoglobinemia had been produced. Chvostek found that circulatory disturbances without the application of cold produced the same result, and also that the blood corpuscles of the patient were less resistant to the action of mechanical influences, such as shaking. Luzzatti and Sorgente repeated these and made several additional experiments.

The first set of experiments was made "*in vitro*" with the blood of the patient obtained in the interval between attacks. The conclusions drawn were:—

- (1) Cold has no direct effect on the blood of the patient.
- (2) The corpuscles show no diminished resistance to the effect of cold.
- (3) The corpuscles are destroyed by sudden changes of temperature.
- (4) The corpuscles show no diminished resistance to the effect of mechanical influences.
- (5) An increased quantity of CO_2 in the blood probably favors the dissolution of the red blood corpuscles.

The second set of experiments was performed by placing a ligature around the arm of the patient with and without the simultaneous application of cold to the extremity. The conclusions drawn were:—

- (1) The congestion produced by the ligature also causes a distinct cooling of the part.
- (2) No hemoglobinemia is produced, when the congested part is artificially kept warm.
- (3) The most marked hemoglobinemia is produced by the combined action of the ligature and cold.
- (4) Cold has a direct action on the circulating blood.
- (5) The serum of the blood in the intervals between attacks has no hemolytic action, on the contrary, that obtained from the blood of the extremity to which the ligature and cold have been applied has a distinct and rapid hemolytic effect.

I have repeated some of these experiments so far as the age and the fact that the patient was not in the hospital would permit.

For the examination of the blood the small spindle shaped capillary tubes used for obtaining the serum for the Widal reaction were found very convenient.

The microscopical examination of the blood of the patient, obtained between the attacks, showed no changes except those of a simple anemia. The application of cold to the blood in the capillary tube produced no change in the clotting; the serum which separated was pale yellow; microscopically examined the red blood corpuscles were found unaltered.

An elastic ligature was placed around the index finger and the hand and a part of the forearm were placed in water at 45° F. for ten minutes. The hand, especially the index finger, became

swollen and cyanotic. When the finger was punctured the blood at first flowed very slowly, afterward much more freely. Clotting took place in the usual way, but the serum which separated was red. In the second tube, which contained blood obtained after the circulation in the finger was again normal, the serum was yellow.

To the red corpuscles obtained from this last tube serum from my own blood was added. No changes could be observed microscopically in the corpuscles. On the other hand when the patient's serum was added to my own red corpuscles it became red within a short time. Microscopically a great many shadows were seen, showing that the hemoglobin had been dissolved out of the corpuscles.

It seems probable that the syphilitic poison may produce in the plasma substances which under certain conditions have a hemolytic action. We already know that a number of bacteria in cultures produce such substances.

The study of the hemolysins is of comparatively recent date. All that is definitely known concerning these substances will be found in Welch's recent Huxley lecture.

PROGNOSIS.—It is remarkable how quickly the patient recovers after what appears to be a very severe attack. In an hour or two he is playing about, as if nothing had happened. Even if the attacks are frequent, there seems to be no danger to life. With the exception of the anemia, which is sometimes marked, the general condition of the patient does not seem to suffer. In those cases in which there is a history of syphilis, the administration of mercury and the iodids causes a rapid improvement in the general appearance and in the character of the blood. The attacks are apt to recur, especially in winter, and may continue for a number of years. In many cases occurring in adults the disease dates back to early childhood. In giving a favorable prognosis the possibility of the development of nephritis must be borne in mind.

TREATMENT.—In the syphilitic cases specific treatment almost always causes an amelioration in the severity and in the frequency of the attacks. A very good method, as I have found, is to give the patient alternately for five days the protiodid of mercury, from $\frac{1}{20}$ to $\frac{1}{10}$ grain, three times a day, and for five days the peptonate of iron. Even in cases in which there is no distinct syphilitic history or manifestations, it is best to give the patient

the benefit of the doubt. Where there is a history of malaria, quinin is indicated.

The diet of the patient should be regulated, and large quantities of milk and of water given, so that the kidneys will be thoroughly flushed and freed from any deposit of pigment which might obstruct the urinary tubules. When the urine contains an abundance of urates, alkalies should be given. For the improvement of the general condition tonics and cod-liver oil are indicated. When the attacks are frequent, the patient should be kept perfectly quiet; walking should be especially forbidden.

Great care should be taken to prevent any exposure to cold. During the winter months, except on days on which the temperature is not low, the child should remain in the house. No cold baths should be given.

Chvostek succeeded in cutting short an attack in a patient by giving inhalations of amyl nitrite, which rapidly dilates the blood vessels. As the contraction of the cutaneous blood vessels probably plays an important part in causing an attack, it would seem rational to give the patient a hot mustard bath with friction of the skin, as soon as the first symptoms of an oncoming attack are noticed.

In order to increase the resistance of the blood vessels of the skin to the effects of exposure to cold, warm baths with friction of the skin will be useful. The temperature of the water can be gradually lowered each day. At the first signs of a chill the patient should be removed from the bath and the next baths given at a slightly higher temperature.

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ARCHIVES OF PEDIATRICS.

FEBRUARY, 1903.

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THE SHIGA BACILLUS AND THE DIARRHEAS OF CHILDREN.

No one interested in the diseases of children could have listened to the recent address of Dr. Flexner before the Medical Association of Greater New York without the most intense interest and the stirring of a hope that at last we are to get light upon one of the most puzzling problems with which pediatricists have had to deal. The Shiga bacillus has been found to be the cause of epidemics of dysentery in Japan, the Philippines, and certain parts of Europe. Last summer two of Flexner's pupils, working in the Wilson Sanatorium for Children near Baltimore, not only found the bacillus in almost all of 50 cases of diarrheal

disease with mucus and blood in the stools, but demonstrated an agglutinative reaction with the blood serum of the patients. Since the delivery of Flexner's address Park has found the bacillus in a considerable percentage of cases of dysentery in both adults and children, occurring in local outbreaks in the neighborhood of New York. It has been found by other investigators in isolated cases in the hospitals of this city.

Flexner held out the hope that in the Shiga bacillus we would find the etiological factor in a large part of the summer diarrheas of children and that it might be possible to develop a serum which would be of service in treatment. It was evidently his expectation that the bacillus would be found as the cause of intestinal lesions of various anatomical types, just as the diphtheria bacillus is the cause of varied lesions in the throat, and that there would thus result a marked simplification of the classification of diarrheal diseases of children, the problem which has so long vexed all concerned with it.

How much the knowledge of the part played by this bacillus in the production of dysentery or diarrhea in childhood would aid in the prevention of the disease is thus far not clear. Flexner suggested that serum, if effective, might find a field in the protection of troops, but could hardly be employed for the protection of children.

The importance of the announcement made by the speaker, if borne out by later investigations, can hardly be over-estimated. The terrible mortality from diarrheal diseases among children, especially in the summer, is only too well-known to all. We cannot expect that the demonstration of the specific relation of the Shiga bacillus will at once greatly modify that mortality, but it will at once introduce definiteness into our conceptions of the etiology of these affections and give definite direction to our efforts for their control; and if in the end the gain can be compared to that brought about by the discovery of the diphtheria bacillus, humanity will again owe a heavy debt to the labors of the scientists.

Within the past month, however, investigations by different

bacteriologists have introduced elements of confusion into this problem of the bacteriology of the diarrheal diseases of children. Hiss, from the laboratory of the College of Physicians and Surgeons, reports finding in a case of fatal diarrhea in a child a bacillus which, in nearly all respects, agreed with that isolated by Flexner, but to further tests showed certain differential points. This bacillus was especially remarkable for its agglutinating reactions, giving positive results with normal human blood, and with various other sera. Park has also reported obtaining most confusing results in testing the agglutinating reactions of various strains of bacilli which have been identified as corresponding to the Shiga bacillus.

The significance of these observations is not, at present, clear. It is evident, however, that the reports of the findings of the Shiga bacillus in this country must be reviewed in the light of this new evidence and that much careful work will be required, before we can safely attempt to make practical use of the results of Flexner's discoveries.

THE FOURTEENTH INTERNATIONAL MEDICAL CONGRESS.

This Congress will be held in Madrid, April 23-30, 1903. The officers of the Congress are: *President*, Prof Julián Calleja, of Sanchez; *General Secretary*, Dr. Angel Fernández-Caro; *General Treasurer*, Prof. José Gómez Ocaña.

The National Committees are: United States: *President*, A. Jacobi, New York; *Secretary*, John H. Huddleston, New York. Cuba: *President*, Manuel Bango y León, Havana; *Secretary*, Augustín Varona y González du Valle, Havana. Great Britain and Ireland: *President*, F. W. Pavy, London; *Secretaries*, D'Arcy Power and P. Horton-Smith.

The officers and program of the Section on Pediatrics are as follows: *President*, Francesco Criado y Aguilar; *Secretary*, Manuel Tolosa de Latour.

Discussions: (1) The Therapeutic Value of Orrhotherapy in Diphtheria. Discussion opened by Vicente Llorente y Matos, Comby (Paris), Cervesato (Bologna), Luigi Concetti (Rome). (2) Treatment of Club-foot. Discussion opened by Antonio Martínez Angel, Broca (Paris), A. Lorenz (Vienna), Ghillini (Bologna). (3) Treatment of Tuberculous Joints. Discussion opened by José Ribera y Sans, Lannelongue (Paris), Hoffa (Würzburg). (4) Infant Feeding. Discussion opened by Fernando Calatrareño; Rousseau Saint-Philippe (Bordeaux), Guaita (Milan.)

The Stomach in the Child.—At a meeting of the *Section of Anatomy and Physiology of the Royal Academy of Medicine in Ireland*, May 30, 1902, the president, Dr. D. J. Cunningham, read a paper on, and exhibited a model of, the stomach in a child. The model exhibited was made from the stomach of a child, aged two-and-a-half years, and was obtained some years since, prior to the introduction of the formalin process. The method he adopted was that of making a series of vertical sections through the frozen body, commencing in the mesial line. By this means he secured a series of slabs which were removed as required, and then a wooden model of the stomach was made. The specimen from which it was made had been previously removed from the vertical slabs and hardened in spirits. He confessed to a feeling of surprise when he found the stomach of so young a child in the horizontal position, with the esophagus entering it on a line slightly anterior to the lesser curvature and at a right angle to the direction of the body of the viscus. It might also be noticed that the interior surface of the organ was slightly flattened and marked with an indentation of the spleen from pressure of that gland. All this was so opposed to preconceived views that he sent the model to Professor His, who was then engaged in similar investigations, for his opinion. His, in reply, said that the vertical position of the stomach in early life was the rule, and he looked on this horizontal condition as abnormal. The second specimen was that of the stomach of a chimpanzee, prepared by the formalin method, which shows an identical condition of affairs.—*Dublin Journal of Medical Science*, November, 1902, p. 386.

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Progressive Medicine, Vol. IV., December, 1902. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. **Edited by Hobart Amory Hare, M.D.** Pp. vi.-422. Illustrated. Philadelphia and New York: Lea Brothers & Co. Price per volume, \$2.50; \$10 a year.

It is very satisfactory to receive a quarterly digest in which the editor keeps in mind that an enumeration of medical journals and authors does not make a *resumé* of a subject. Dr. Bloodgood, who has charge of the surgical section of this volume, is most direct in his exposition of the topics that fall to his share. He quotes the writers in the current journals but he also expresses his own opinion, so that the reader is not left to wander through a maze of clippings.

Dr. Harrington's chapter on hygiene gives some recent views on improving the milk supply and also literature controverting Koch's theory of the nonidentity of the bacilli of human and bovine tuberculosis.

The Diseases of Infancy and Childhood. Designed for the Use of Students and Practitioners of Medicine. By Henry Koplik, M.D. Pp. xi.-675. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1902. Price, \$5.

Dr. Koplik presents to physicians and students a practical guide and text book founded on his observations as a clinician and teacher.

The directions for the general observations that are necessary for an examination of a sick child are clear and well expressed. A stethoscope is essential to the proper examination of the chest of an infant or child. Babinski's reflex is stated to have but little value as a diagnostic sign.

In the therapeutics of childhood alcohol is said to be well borne by children even with nephritis, but in the gastroenteritis of infants the stomach is intolerant of it. The full bath of Brand is seldom carried out in the treatment of children. Stomach washing

is useful in the gastroenteric diseases of the summer months. One washing as a rule is sufficient. This is sensible advice to the enthusiasts who would wash out a baby's stomach every day.

With all the agitation relative to infant feeding during the past ten years and the endeavor to make artificial preparations conform to human milk, there is a satisfaction in having the author's opinion that human milk is so variable in composition that definite knowledge of many aspects of its chemistry is still lacking. Dr. Koplik does not believe that we can always increase or decrease the casein or fat by giving certain articles of food. The milk laboratory should be employed for sick children who are fed artificially, but we should be able to direct home modifications. For home modification Chapin's plan and a definite fat cream are given the preference over other methods. Dr. Koplik is not prepared to pass a final opinion on the merits of dextrinized gruels; cases of gastroenteritis in infants do better with them than with milk modifications.

The chapter on the diseases of the new-born infant is well written but it is unnecessary to burden us with Winckel's disease as a heading with epidemic hemoglobinuria of the newly-born bracketed underneath it. It would be better to transfer the personal designation to the second place, as the author has done in his description of acute fatty degeneration.

Glandular fever, so named by Pfeiffer and also by West, is described as a form of infection. This is certainly a safe designation. In cases of cerebrospinal meningitis lumbar puncture is advocated both as a diagnostic and as a therapeutic measure.

Dr. Koplik speaks modestly of his work with a bacillus that was observed in pertussis. Positive proof that this bacillus is the cause of pertussis is lacking.

That laparotomy in tuberculosis of the peritoneal surfaces is beneficial the author does not seem convinced. The diseases of the gastroenteric tract are given in what may be termed a clinical classification. These are not all termed diseases, as the author calls colic a symptom of disturbed condition and tympanites a condition of distention from gas. The liver has very little space allotted to it and the symptoms of cirrhosis are confined to three lines. The blood and the changes in it caused by disease are studied with care.

Dr. Koplik's book is worth careful study. The classification

will not please everyone; some readers will be disappointed that the author is not always as positive in his written opinions as he is in discussion, but all will agree that the volume shows a knowledge of morbid processes and clinical phenomena that entitles the author to the right to add to the already large number of text books on pediatrics. Additions to some chapters and corrections in grammatical construction will improve the volume, but allowing for the shortcomings of a first edition it is a book that offers a large store of clinical experience.

The work is arranged with full faced headings to show the salient features of each chapter, and the important literature is given at the end of the chapters instead of being scattered through the text. The illustrations are of unusual excellence and the printers deserve credit for the clean pages.

Natural Means of Alleviating Pain.—Ritter (*Archiv. für Klin. Chir.*, Bd. lxxviii.) makes the announcement in this article that he has established by his research that the pain from a serous effusion is not caused by the mechanical action of the fluid but by its concentration. The constant destruction of albumin produces rapidly a very concentrated fluid, which causes intense pain, but as more serum mixes with it, the pain diminishes as the dilution increases. The concentration of the fluid is evidenced by the variation of the freezing-point. It averages normal in the pus of a cold abscess, but may be .715 C. in empyema pus, etc. Bier has called attention to the fact that his methods of inducing artificial hyperemia or venous congestion reduce the pain to a marked degree. Ritter shows that this alleviation of the pain is due to the dilution from the hyperemia or venous congestion in the concentrated effusion. We must assist Nature in this process of dilution, and we will be able in this way to systematically alleviate pain. He has been most gratifyingly successful in the application of these principles to the treatment of severe, painful burns, inducing venous congestion, according to Bier's directions.—*Journal American Medical Association.*

Society Reports.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.—LONDON.

Meeting of November 21, 1902.

DR. A. E. SANSOM, CHAIRMAN.

MR. FRANK DEAS showed a male child, aged one year and seven months, with

CONGENITAL DEFORMITIES.

Right hand: thumb normal, index and middle fingers united by thick fleshy union as far as first interphalangeal joint; middle or ring fingers united throughout whole extent at birth by thin skin web. This had been cured. Little finger absent. An x-ray photograph showed only three metacarpal bones—one for thumb, one for ring finger and a middle one for the fused index and middle fingers. The left-femur was one and three-quarter inches shorter than the right. An x-ray photograph showed the bone to be shorter and smaller than the right.

DR. HENRY ASHBY (Manchester) showed

A LARDACEOUS LIVER WITH GUMMATA

from a girl of ten years. The patient had been under observation for four or five years with a hypertrophic condition of the bones of both forearms and also the tibiae. At the postmortem the kidneys were "large white" and lardaceous, liver and spleen were also lardaceous, the liver extremely so. There were fifteen or sixteen gummata the size of small nuts on the surface and seen on section, and there were several scars on the surface. Professor S. Délepine was good enough to confirm by microscopical examination the gummatous nature of the lesions.

MR. D'ARCY POWER inquired whether the joints were examined at the necropsy and whether the thickening of the bones noted during life was due to periostitis.

MR. TUBBY asked if pneumonia alba was present.

DR. THEODORE FISHER (Bristol), mentioned a somewhat similar case in a boy aged nine years.

MR. CLEMENT LUCAS spoke of the treatment of the osseous lesions of hereditary syphilis which he considered practically incurable.

DR. ASHEY, in reply, said the bones were not examined at the necropsy, nor were the joints; with regard to the lungs hypostatic trouble only was found. He agreed that in such cases, mercury and iodid of potassium had but little effect upon osseous lesions.

DR. C. O. HAWTHORNE showed (1) a girl of nine years

WITH A CIRCUMFERENTIAL CICATRIX

of the abdominal wall and of the left thigh attributed to constriction by the umbilical cord and (2) a patient with

BILATERAL COLOBOMA OF THE IRIS,

choroid and optic nerve.

MR. R. C. DUN (Liverpool), gave notes upon

(a) TRAUMATIC SUBCUTANEOUS RUPTURE OF SPINA BIFIDA.

(b) ECTOPIA OF THE BLADDER

without diversion of its walls; partial epispadias; incomplete descent of testicles. With regard to case (a). The patient, a girl six years old, had a lumbosacral spina bifida from birth. She was run over by a light milk-cart. The spina bifida disappeared entirely without any external escape of fluid. A fortnight after the accident a swelling appeared over the left dorsum ilii, a few days later the old spina bifida reappeared. From the time of the injury the child suffered great pain and was unable to lie on her back. There was partial paralysis of the bladder. On operation the sac of the spina bifida was found to be abnormally thick. A small opening on its left side led into a very thin sac, closely adherent to overlying tissues and passing out three inches over the left glutei muscles. A number of nerves were adherent to the thicker sac; they were returned to the spinal canal. The sac was excised, and the spina bifida and pain were cured; the bladder paresis was unchanged.

DR. GEORGE CARPENTER read notes of

A FATAL CASE OF LEUKEMIA

in a child aged three and one-half years. It was of five weeks' duration. The liver and spleen were enlarged and both palpable; lymph nodes could not be felt. The red blood-corpuscles were 31 per cent., the hemoglobin 15 per cent., the ratio of white corpuscles to the red was 1 to 12. The increase of white corpuscles was mainly small lymphocytes together with large mononuclear leukocytes. At the postmortem the liver showed lymphoid infiltration in the portal canals and the cortices of the kidneys extensive lymphoid infiltration. The mesenteric nodes were enlarged, some were caseating and contained tubercle bacilli. The lymph nodes along the large vessels of the abdomen and down to the groins were a trifle enlarged as were also the bronchial lymph nodes.

MR. SIDNEY STEPHENSON exhibited a female child, aged four years, with

TUBERCULOSIS OF THE CONJUNCTIVA OF THE LEFT EYE.

The condition had existed for two months, and was associated with considerable enlargement of the nodes below the left lower jaw. The child had lost flesh since these symptoms commenced. There was said to be no consumption upon either side of the family. Upon examination the lids of the left eye were found to be semiclosed and obviously thickened, presumably from lymphangitis. There was a considerable amount of trachoma-like material in connection with the semilunar fold. Upon everting the eyelids, the lower palpebral conjunctiva was seen to be strewn with miliary granulations and folds of granulation tissue, but no ulcerations could be found. The superior retrotarsal folds showed similar changes. The cornea was clear. The diseased material, examined microscopically, showed a typical picture of tuberculosis. No tuberculosis was found elsewhere, so that the infection appeared to be primary.

Summer Diarrhea.—From a recent study of the disorder in the Bethesda Foundlings' Home, Zahorsky (*St. Louis Courier of Medicine*, December 1, 1902) found the Gruber-Widal reaction in a large proportion of cases and the *Bacillus dysenteriae* was obtained. There will be little doubt, he thinks, that the epidemic depended on this bacillus, and he believes that while we can not exclude other germs this must be considered the probable etiologic micro-organism.—*Journal American Medical Association*.

THE NEW YORK ACADEMY OF MEDICINE.—SECTION
ON PEDIATRICS.

Stated Meeting December 11, 1902.

ROWLAND G. FREEMAN, M.D., CHAIRMAN.

DR. R. H. McCONNELL presented a case of

ARTHRITIS DEFORMANS; ALSO ONE OF RICKETS.

DR. ARTHUR L. FISK presented a

CASE OF DOUBLE HAIR LIP

to show the result of operation.

DR. HENRY L. K. SHAW, of Albany, described and demonstrated

A SIMPLE METHOD OF EXAMINING MILK.

The essential part of the method was the adaptation of the ordinary urinary centrifuge for use in estimating the butter fat in milk.

CASES OF FOREIGN BODY IN THE INTESTINE.

DR. L. EMMETT HOLT reported these cases. The first was that of a child of six months, who had been in the habit of swallowing foreign bodies. Early in June this infant had an ordinary attack of measles. After the temperature had reached the normal it again rose because of a complicating mastoiditis. Both ear drums were punctured, but in spite of this treatment the child's temperature fluctuated between normal and 106° F. for several weeks, and eventually recovery took place before the many physicians, whose advice had been sought, had been able to arrive at a diagnosis. The temperature would remain normal up to noon or 5 P.M., and then rapidly rise to almost 106° F. The father, who was a physician, made a large number of examinations of the blood, and was able to exclude malaria. The lungs remained absolutely normal throughout the illness. One morning during the third week of the sickness the child was found cyanosed and struggling, the trained nurse removed a handful of safety pins from the infant's mouth, and it was thought that only one pin had been swallowed. Five days later the

mother reported that three safety pins had been discharged per rectum, one of them being bent like a fish-hook. A day or two afterward the child had a constipated movement, and the trained nurse examined the stool and reported that it was free from pins; but the mother insisted upon making a personal examination and was rewarded by finding four more safety pins.

The speaker said that he knew of a child who had been allowed to play with a set of toys, and, while doing so, swallowed a toy sugar-tongs, measuring one and one-half inches in length, and a knife, which was a little longer than the tongs. At one time he had made an autopsy on a child and had found a safety pin impacted in the larynx. This was apparently the cause of death.

ACUTE PYOGENIC INFECTION IN THE NEW BORN.

DR. HOLT also reported this case. The subject of it was an infant that had been sent out from the New York Foundling Hospital to be wet-nursed. It was apparently well for the first fourteen days of life, but then a few dark spots were noticed on the extremities. These rapidly increased in number and by the third day the lower half of the face, the neck, the extremities and the buttocks were covered with these hemorrhagic spots. The majority of them were one-quarter of an inch in diameter and of irregular shape. Each spot was surrounded by redness and induration. There was slight hemorrhage from the umbilicus. Examination of the gums was negative, except that at the site of the upper incisor tooth there was a hemorrhagic area half an inch long. There were no hemorrhages into the eyes. The viscera appeared to be normal except for a decided enlargement of the spleen. The rectal temperature on admission to the hospital was 100.8° F. The child failed rapidly and died in two days. Before death the urine became slightly blood-stained and râles were heard over the lower half of the lung. The autopsy showed the left lung to be the seat of some atelectasis. There was also a purulent meningitis with an abundant exudate on both the convexity and base. The ventricles of the brain were distended with serum containing flocculi of pus. Cultures were made by Dr. Martha Wollstein from the skin during life, and from the internal organs postmortem. A pure growth of the staphylococcus pyogenes aureus was obtained from the spots on the skin, as well as from the blood of the heart and liver and from the pus in the brain. Dr. Holt said that the hemorrhagic

eruption in this case was the most abundant one of its kind that he had seen. The temperature never exceeded 101° F., there were no convulsions and there were no symptoms of meningitis. In this, as in other similar cases of infection that he had seen, there was no peritonitis. The occurrence of this case of infection had led to the establishment, at the New York Foundling Hospital, of the rule that no infant should leave that institution until the umbilicus had healed.

DR. HOLT also referred to a recent case at the Lying-in-Hospital, in which a mother had returned nearly four weeks after the birth of her child, and accused the hospital physicians of having broken its thigh. Investigation showed that there was a symmetrical development of lesions, and that the real cause was infection.

DR. H. L. K. SHAW, of Albany, in discussing the cases of foreign bodies swallowed, said that last winter he had seen with Dr. Hun an infant of ten months with a temperature ranging between 103° and 105° F. No obvious cause for this fever was present and examination of the blood showed an absence of leukocytosis. On the twelfth day the fever declined somewhat, and on the fifteenth day the nature of the illness was disclosed by the passage of a long bristle from the bowel.

DR. J. FINLEY BELL, of Englewood, cautioned against the use of enemata where foreign bodies had been swallowed; our effort should be to give a dry and bulky diet and avoid liquefaction of the feces.

DR. HOLT said that he knew of a child who had suffered from intestinal disorder all summer, but had improved promptly upon the passage of a large ball of hair. It seems that the child was accustomed to sit upon a large bearskin rug and had swallowed the hair picked from the rug from time to time. The cases reported by him emphasized the need for great care in selecting for young children toys having no loose parts and the last case mentioned suggested the advisability of excluding from the nursery toys covered with hair or wool.

REPORT OF A CASE OF ADENOIDS WITH MALARIA.

DR. W. F. CHAPPELL reported this case. A girl, one month old, developed nasal obstruction and was very pale when five

months old. At this time Dr. Chappell removed ten small pieces of lymphoid tissue from the nasopharynx without anesthesia. At once the little one began to improve, but a few weeks later she became irritable and feverish. A slight enlargement of the spleen led him to suspect malaria. Inquiry elicited the fact that the baby had been carefully screened from mosquitoes until recently, when, through an oversight, the net was left off, and the little one received two mosquito bites, which were so severe that they were visible two weeks afterward. Examination of the blood showed the organisms of tertian malaria. It had been found necessary to push the quinin, the baby receiving a total of 241 grains of this drug in twenty-seven days. The quinin was stopped on November 6th and since then there had been no return of the malarial manifestations. The first symptoms had appeared ten days after the child was bitten. Dr. Chappell said that subsequently he had secured from this locality thirty specimens of mosquitoes, three of them being anopheles.

Diagnosis of Congenital Dislocation of Hip.—It has been shown that many children are born not with the hips already dislocated, but with a decided anatomical tendency toward dislocation, as is shown by changes in the contours of the acetabulum and the head of the femur, as well as in the relation of the two to each other. It is extremely difficult to make the diagnosis in the newly born, and the average physician does not possess a Roentgen apparatus to aid him. P. Bæde (*Münch. Med. Woch.*, August 26, 1902) draws attention to several folds whose course varies in dislocation. One of these runs downward and inward between the quadriceps extensor and the adductors; another is situated somewhat lower and begins nearer to the median line. In normal thighs both sets of folds are situated equally high, and the adductor folds meet on the inner sides of the thighs, but there is a distinct asymmetry where there is only a disposition to luxation. By carefully observing these lines the diagnosis can be made very early and treatment begun before the children walk.—*Medical News.*

THE NEW YORK ACADEMY OF MEDICINE.—
SECTION ON ORTHOPEDIC SURGERY.

Meeting of November 21, 1902.

GEORGE R. ELLIOTT, M.D., CHAIRMAN.

DR. HOMER GIBNEY presented a

CURED CASE OF POTT'S DISEASE

in a child three years old, with the following history: Six months before (January, 1901), from no known cause he began to walk awkwardly, the abdomen was thrown forward and he swayed from side to side with evident pain. Nothing was noticeable but the above till June, when a swelling appeared in the left buttock which interfered with locomotion. He was treated at various hospitals and operated on at a downtown hospital, by aspiration, pus and blood being withdrawn. Examination showed a fairly well nourished child; nodular swelling on left buttock posterior to the great trochanter, tense but not painful. Boy could not walk. The body was thrown forward, the abdomen prominent. In the effort to pick up a penny, he supported himself by hands on knees. The lumbar spine was rigid and there was a slight prominence at the fourth lumbar vertebra. On August 1st, a frame was applied and the grandmother was instructed in its care. December 20th: doing well, very little deformity. Swelling on the left side had disappeared. January 11, 1902: Back in good condition, no deformity, fairly flexible. July 1, 1902: For two months has worn permanent jacket, which was applied and allowed to dry on the frame, thus getting complete fixation in over-corrected position. November 18th: Left off the apparatus, spine flexible, no evidence of disease; discharged cured.

As to treatment, he said the frame was the one used in dispensary and private practice, a modification of the Bradford frame, made of canvas over gas piping, easily bent from time to time, thus over-correcting the deformity.

DR. CHARLTON WALLACE presented

THREE CASES OF POTT'S DISEASE UNDER TREATMENT

on the Whitman modification of the Bradford frame, the duration

of the disease being twelve, eight and six months respectively. He said that, while as a rule cases over eighteen months of age are not treated by the frame, one of the cases presented was four years old and was doing well on the frame; in that case the disease had only lasted six months. The frame used is a parallelogram made of three-quarter inch gas piping, four inches longer than the child, two inches excess at either end. It is made wide enough, so that the side bars are opposite the glenoid cavities of the scapulæ. It is covered with tightly fitted canvas laced in the rear. Two pads are arranged on each side of the focus of the disease and are sewed to the canvas. Rubber cloth covers the canvas over the lower half for cleanliness. The apron is attached to three buckles on the sides by straps which are kept tight. The frame is gradually bent backward till the highest angle of the bend is at the site of the disease, so that the back is hyperextended and the pressure relieved from the bodies of the vertebræ.

DR. R. H. SAYRE said he thought the treatment excellent. He used a similar treatment. He believed, however, that Dr. Wallace allowed the patient too much freedom of motion. He considered the motion of the legs unwise, as the play of the psoas muscle exercised a great deal of action on the spine, especially if the disease affected the lower dorsal or lumbar regions. In such cases the legs and trunk should be controlled; a jury mast to the frame would be an advantage. He preferred the cuirass, allowing control of both extremities of the spine. It was also injurious to take the child off the frame for movements of the bowels and bladder, as so much moving would cause traumatism of the spine.

DR. ROYAL WHITMAN stated that he had described and illustrated the treatment illustrated by the cases presented some years ago and thought it better than the cuirass or other flat apparatus because of the over-extension which this apparatus allowed. He further remarked that children were not removed from the frames for movements of bowels, diapers or an ordinary dust pan being used while the child was in position on the frame. Head and leg traction could be used, if necessary, but that the position of over-extension itself was a great protection to the spine; it was also an advantage to have the side bars close together, as this allowed of less sagging than in the original Bradford apparatus. He further observed that the clothing adjusted over the frame was arranged to include the frame and the child. If further

fixation were desired, the child was suspended and a light plaster jacket applied. The patient was then replaced on the frame to which its jacket must conform in hardening, thus assuring fixation and over extension.

DR. WALLACE, replying to Dr. Sayre, said that none of the cases shown was lumbar and a band was passed over the forehead to restrain head movements.

DR. WHITMAN presented a patient operated upon five years ago for

CONGENITAL DISLOCATION OF THE HIP,

by the open method with enlargement of the acetabulum. One side only was operated upon, as ankylosis appeared probable. Now the girl, aged eleven years, limps on the unoperated side and considers the ankylosed limb the "good one." The operated limb is two inches longer than the other and is much larger. There is no deformity and practically no motion in the joint. This Dr. Whitman considered as bearing out his contention advanced some years ago, that in the treatment of unilateral dislocation secure reposition, even if motion was very limited as the result of operative interference, provided there were no deformity, was a great improvement over unreduced displacement. He mentioned three similar cases to the one presented and stated that he thought all of them had asked for operation on the other limb.

DR. V. P. GIBNEY referred to a case similar to the one presented by Dr. Whitman, in which one side had been operated on with ankylosis, the operated leg being the better. He spoke of another case in which the operated limb was two and one-half inches shorter and the thigh three inches smaller in circumference, yet the patient walked with ease. He noted the fact that patients and parents generally regarded these results from a different standpoint than the physician and almost invariably begged for operation on the other leg.

DR. S. A. TWINCH asked Dr. Whitman how the patient would walk with both hips ankylosed.

DR. WHITMAN stated that he had refused to operate on the second limb, because he feared ankylosis. He did not present the case as showing a good result but to demonstrate the contrast between the unoperated and the operated limbs, and further, that

supposing this had been a unilateral dislocation, the present result would have been far better than to have had a limb which would become progressively shorter.

THE CHAIRMAN asked Dr. Whitman if he fixed an age limit for the open operation.

DR. WHITMAN said he did not fix a positive age, but thought that the open operation could be done on older patients than in the case of the Lorenz operation.

DR. L. W. ELY asked Dr. Whitman why he had not used the Lorenz operation on the other side.

DR. WHITMAN thought it probable that the case had passed from observation; it was possible also that the Lorenz operation was not in such favor at that time.

DR. SAYRE presented a patient

WITH A NOISY SHOULDER.

He gave a history of slight curvature of the spine accompanied by crackling of the muscles over the scapula on moving the shoulder up and down; there was also pain over the deltoid on the same side; the impression was given that the scapula was sliding over some substance. The case was presented for diagnosis and suggestions for treatment. Dr. Sayre referred to a somewhat similar case in an athlete who, after violently lifting weights, stated that he had pain along the erector spinæ muscles with muscular cracklings.

DR. V. P. GIBNEY said he had a similar case under observation in a young woman aged twenty, who had a noisy shoulder for a year. She had intercostal neuralgia and hysterical spine. He regarded the symptom as hysterical and prescribed the Paquelin cautery with rest; marked improvement followed.

DR. WHITMAN had seen several such cases and was impressed by the fact that the patients always wanted to produce the noise. He thought it was caused by a snapping tendon or possibly by a bursa beneath the scapula.

DR. HOMER GIBNEY stated that in giving exercises to patients he had noticed these crackling sounds in many cases, especially in one exercise for lateral curvature. He also thought it was a snapping tendon,

THE CHAIRMAN said he had seen similar cases and at present was treating a girl for lateral curvature of the spine who had the noisy shoulder to a marked degree. When he first saw her the scapula was quite immovable. She had been taking rather vigorous exercises under treatment and as a result the scapula had become quite mobile, and the noise was very marked. The slipping of tendons did not satisfactorily explain this objective symptom.

DR. LEONARD W. ELY read a paper entitled

A CASE OF TYPHOID SPINE.

He referred to the summary and analysis of 26 cases reported by Dr. F. T. Lord in the *Boston Medical and Surgical Journal* of June 26, 1902, since Gibney reported his first cases in 1889, and said he had found 3 more cases reported.

The patient he referred to in his paper was a physician, aged thirty-three years, who had a severe type of typhoid fever, January, 1902, complicated with pneumonia and pleurisy. At the end of six weeks when the patient began to sit up, weakness of the back was observed. Following the convalescence in March, the weakness in his back continued and was made worse by an attempt to stoop. A lateral curvature and stiffness of the lumbar spine was observed, with some pain and great difficulty in standing erect. March 23d, a severe chill was followed by pneumonia of the left lung, complicated with pleurisy with effusion.

After three weeks, when the patient began to go about, the lateral curvature was quite marked and was accompanied as before by stiffness, weakness and lumbar pain; no sensitiveness of spine to pressure. He went to Southern California early in May, but the spinal symptoms did not subside. The stiffness, weakness and pain were increased by exertion. A severe cramp in the left lumbar region followed an attempt to rise from his chair, and returned each time he attempted to get up, so that he was compelled to keep his bed. When quiet in bed, the pain did not return. A severe spasm in the left lumbar region, however, followed, while turning over in bed. The spasm was tonic in character lasting thirty seconds, gradually relaxed, then returned and was only relieved by chloroform inhalation, after moderate use of morphine had failed. It was necessary to chloroform the patient when subjecting him to any effort.

The pain shifted to the right lumbar region, the spasms be-

came less severe and were controlled by morphine. Examination showed exaggerated patellar reflexes, intermittent twitchings of the muscles of the thigh, no loss of sensation, no paralysis.

Spasms in the back continued, sometimes causing opisthotonos. Spasmodic attacks continued at intervals until July 27th. After this he often had the so-called "starting pain" upon falling to sleep. On September 22d a Taylor brace was applied and improvement from this on was rapid, but pain and stiffness in the right groin persisted for some time.

Stiffness and limitation of the lumbar spine were the only objective signs, when he returned to New York October 13th. He still wears the brace.

Referring to the pathology of typhoid spine he said no autopsy had ever been reported. He believed it, however, an osteitis probably combined with a periostitis, and a probable neuritis caused by the inflammation of the bone and periosteum. This was generally considered to be the pathology of typhoid spine, but Osler thought it a neurosis and reported 6 cases.

Of the reported cases, 26 out of 30 were in males. The symptoms of the reported cases were much like those of lumbar Pott's disease, but more acute, and had the history of typhoid. Rest was the essential in treatment. Local application did little or no good.

DR. WHITMAN agreed with Dr. Ely that cases of typhoid spine were not so very uncommon. He had seen a number and had one case now under treatment at the hospital, a child ten years of age.

DR. V. P. GIBNEY considered the history presented by Dr. Ely as the most complete on record and agreed with him as to the frequency of the affection. There are all degrees of typhoid spine, some very mild and similar to those described by Osler. He had never been able to trace any definite trauma as cause. He was surprised that no relief was experienced from the cautery and thought it was not properly used, as he had obtained good results from it. He had nothing to add to the pathology. He thought the cases with kyphosis should not be included in the class of typhoid spines.

DR. WHITMAN wished to know why cases were not to be included with typhoid spines in which kyphosis indicated destruction of the vertebræ.

DR. GIBNEY answered that if the vertebrae were destroyed, there would evidently be a destructive inflammation which was apparently not the case with typhoid spines, the condition being rather one of overgrowth of tissue. He was inclined to think that, in the deformed cases, a tuberculous element was present.

DR. SAYRE referred to a case of what he called "diphtheritic spine," following an attack of diphtheria. The disease left a slight nephritis and spinal disturbance attended with a certain amount of lateral deformity and intraabdominal abscess formation, presumably the consequence of the diphtheritic infection.

DR. ELLIOTT asked Dr. Ely if, in his research of the literature of typhoid spine, he had found recorded marked relief following the application of a carefully applied support.

DR. ELY replied that the effect was usually put down as being very quickly favorable. He regarded Dr. Gibney's remark about application of the cautery as a point well taken, and stated that the attending physician used the instrument at a black heat and made slow application, an operation the patient did not want to have repeated. He emphasized the necessity of rest in the treatment.

DR. A. A. BERG presented a case of acute serous arthritis. An acute osteomyelitis of the femur had developed and the case was seen three days after the onset of the disease. There was considerable effusion in the knee joint. The medulla and lower epiphysis were opened and drained, and the symptoms disappeared. There was no interference with function of the knee joint.

DR. BERG read a paper entitled

THE JOINT COMPLICATIONS OF ACUTE PYOGENIC OSTEOMYELITIS;
WITH ESPECIAL REFERENCE TO THE TREATMENT OF
THE PURULENT FORMS OF ARTHRITIS.

The joint manifestations, that may complicate acute pyogenic osteomyelitis, are divided into the sympathetic or pseudoarthritis and the true inflammatory arthritis. The former accompany the very early stages of the bone infection and are often the first and only physical signs of such an acute osteomyelitis. This explains why these cases are so frequently diagnosed as acute articular rheumatism. The true arthritis is due to bacterial invasion of the affected joint. The sympathetic or pseudoarthritis adds in no way to the severity of the septic symptoms arising from the

primary bone infections and tends to spontaneous subsidence, after drainage of the marrow canal. The true bacterial arthritis adds materially to the patient's toxemia; itself requires surgical interference and is apt to leave the joint seriously impaired in integrity and function.

The writer laid stress upon the peri-arthritis that accompanies the joint inflammation, whether the latter be of mild or severe form. It is of much importance diagnostically, inasmuch as the acute rheumatic and gouty forms of arthritis are at first confined to the joint serosa, with little or no peri-arthritis. The varieties of joint inflammation and their symptoms were briefly described.

The writer has minutely described his practice in the treatment of these joint complications. The suppurative types of arthritis he divides into the cases in which a purulent exudate into the joint is the chief lesion, there being very little destructive change of the components of the joint, and those in which the destructive inflammation of the ligaments, cartilages and serosa is far more important than the purulent exudation into the joint. For the former, single or multiple incisions into the joint with evacuation of exudate and drainage by tube or gauze yield very good results; in the latter he proposed that the suggestion of the Drs. Mays for such conditions of the knee joint, viz.: wide incision of the joint with partial dislocation of the bones, and dry gauze tamponade of the joint, with dressing in the dislocated position, be applied to the other large joints. He had employed this method in 3 very severe cases of suppurative gonitis with excellent results and he felt assured that results equally satisfactory would follow the application to the other large joints. The technique of the operation for the knee and other joints was minutely described.

DR. SAYRE congratulated Dr. Berg on the result shown in the case presented. Regarding acute suppuration of the joint, he thought there was no question that radical operation in many cases would save amputation and give a useful joint.

DR. V. P. GIBNEY spoke of the interesting array of surgical facts presented by Dr. Berg and thought that the recognition of bone lesion by the earliest symptom, effusion into the joint, was a well chosen point. In tuberculous arthritis of the knee, effusion into the joint is a well recognized symptom before the bone symptoms appear. He thought these cases were often mistaken for rheumatic and traumatic synovitis.

DR. R. H. HIBBS thought Dr. Berg's paper instructive, though his own experience in that line of work had been rather limited. He thought cases of synovitis supposed to be acute, but really manifestations of bone lesion, were common.

Fracture of the Clavicle in the New-Born Occurring During Spontaneous Delivery.— During the course of one year, Riether (*Wiener Klin. Wochenschrift*, June 12, 1902) observed 65 cases of fracture of the clavicle in the new-born which occurred during delivery, but arose independently of the manipulations of the midwife. As a rule, this condition is only diagnosed after repeated, careful examinations, for there is commonly no displacement of the fragments and but slight loss of function. The typical signs of fracture were usually absent, and in some cases the diagnosis was not made until the appearance of callous formation.

In forty-six of the patients, the fracture was located in the middle third of the clavicle, in fourteen at the acromial end, and in four at the sternal end, while in one the location was not specified. The clavicle which comes in contact with the symphysis during delivery is the one most frequently fractured. In 23 cases in which the back of the child was turned toward the left, the right clavicle was broken fifteen times, and the left eight times; while in nineteen in which the back was turned toward the right, the left clavicle was fractured in twelve and the right in seven.

The absence of injury to the soft parts and the rapidity of bone repair in the young afford a favorable prognosis in these cases. Any deformity which may result from union of the fragments in a faulty position usually disappears during the future development of the thorax and shoulder girdle.

In the cases in which there is not much displacement of the fragments, the best dressing consists in sewing a jacket about the child's chest and fastening the arm in the flexed position by means of a wristlet sewed fast to the jacket. In the cases in which deformity is present, a small wedge-shaped pad should be placed in the axilla, and the arm retained by bandages after protecting the skin with a thick layer of zinc oxide ointment. This dressing can be retained for a week without producing skin irritation.—*New York Medical Journal*.

Current Literature.

PATHOLOGY.

Richon : Some Fatal Cases of Chorea of Sydenham. (*Rev. Mens. des Mal. de l'Enf.* Vol. xx., No. 10).

CASE I.—Girl, six years old, with chorea of moderate severity and marked psychopathic troubles. The heart was normal. She had a sudden apoplectiform attack, after which the choreic movements became much worse, and death occurred twenty-four hours later. At the autopsy the meninges were found thickened and congested; there was an old mitral endocarditis. There was no history of rheumatism. The etiology of the apoplexy remained unexplained.

CASE II.—Boy, eleven years old, nervous, developed chorea after an attack of grippe with angina and laryngitis; he also had a violent shock at the sight of a dead child. The movements became so violent that he was bruised all over while lying in bed; there were no psychic disturbances and death occurred in eleven days. At the autopsy a mitral endocarditis was found, but no gross lesion in the nervous system. Degenerative changes were found in the spinal cord cells.

CASE III.—Girl of fourteen years. After lasting two months the chorea became worse and mitral endocarditis appeared. Death occurred after ten days. There were no gross lesions in the nervous system at autopsy.

CASE IV.—Girl, eleven years old. She had a mild attack of chorea with endocarditis. Two months later there appeared the symptoms of severe septicemia with endocarditis, and death followed in ten days. At autopsy the mitral valve showed cauliflower-like vegetations. Cultures from the spleen gave a pure growth of streptococci.

CASES V. and VI.—Aged twelve and eight years respectively, are examples of a type of chorea, without an antecedent history of rheumatism, in which the cardiac lesion grows slowly, finally dominates the clinical picture, and causes death after several years.

The second and third cases were typical examples of the most frequently observed fatal cases of chorea. In all the cases there was an endocarditis (usually of undetermined origin) and an ab-

sence of typical cerebrospinal lesions. The severe forms seem to be characterized by a rapid evolution of very severe motor disturbances which accompany a profound nervous intoxication. The nervous heredity in these cases is usually slight; the rheumatic inheritance rare. The personal history is apt to show more constant and more marked nervous symptoms, but rarely shows typical, articular rheumatism.

Bovaird, D., Jr.: Pathology of Empyema. (*The Medical News.* Vol. lxxxi., No. 11.)

The points in the pathology of empyema upon which the writer would lay emphasis are:

1. Its frequency in children.
2. The frequency of bilateral cases.
3. The impossibility of drawing a sharp distinction between serofibrinous pleurisy and empyema.
4. The creamy consistency of the exudate in many cases.
5. The frequency of sacculated effusions.
6. The frequency of pneumonia, especially bronchopneumonia, as a preceding or accompanying lesion.
7. So far as concerns the bacteriology of empyema, the pneumococcus is present in the great majority of cases in children, especially in the thick creamy exudates. The streptococcus or staphylococcus pyogenes is found in a much smaller percentage of cases, especially in those not associated with pneumonia and characterized by thin purulent exudates.
8. Tuberculosis is present in but a small percentage (6 per cent.) of cases.

Jacques, W. K.: The Microscope in the Diagnosis of Scarlet Fever. (*Journal of the American Medical Association.* December 6, 1902, p. 1445.)

In this article the writer presents his experience with the coccus, which W. J. Class, of Chicago, claims is the specific agent in the production of scarlet fever. The coccus in question closely resembles the staphylococcus albus, but a study of several cultures of the organism, extending over some days, will reveal its individual characteristics. It is very sensitive to environment and is modified in form so as to appear as a diplococcus, a streptococcus, or a streptobacillus, merging from one into the other in the same culture. It also has a wide variation in size, from a point

which can just be distinguished with an oil immersion twelfth to (in old cultures) a coccus a third the diameter of a red corpuscle. The multiplication is by division and it multiplies in all its various sizes. The shape, as usually seen, is round, with what appears to be a hole in the centre. This is due to refraction or to staining qualities. As the germ increases in size a dividing line can be seen in the centre. In the older cultures, when the coccus is large, on each side of this centre line, the cell sustains in the shape of a crescent with the points toward the line. For routine work, cultures are made in the same way as in cases of diphtheria. The writer believes that the presence or absence of the Class coccus in such cultures will confirm or exclude the diagnosis of scarlet fever, as the case may be. In some cases the culture has decided the nature of the disease before the rash has appeared.

Spitta, H. R. D.: A Case of General Pneumonic Infection in a Child of Seventeen Months. (*British Medical Journal*. November 15, 1902, p. 1579.)

The secondary complications of infection with the pneumococcus of Fraenkel are not infrequently met with. Spitta briefly reviews the more important of them. In Kanthack's analysis of 170 fatal cases of pneumonia, which occurred in St. Bartholomew's Hospital during the years 1891-5, he ascertained that in no less than 35.7 per cent. secondary complications had ensued; and that though most deaths actually took place from twenty to forty, yet the inflammatory complications were most commonly seen in young people, for in 25 cases occurring in patients under the age of twenty-one years no less than 64 per cent. died of secondary infections, a percentage almost twice as high as that of all the cases taken together.

Pericarditis is the most common secondary infection met with in lobar pneumonia, especially in young children. From statistics published by Still and others there seems no doubt that the pneumococcus is one of the commonest causes of pericarditis in young children. It is not necessarily due to extension, for it may occur independently of pleurisy. Pleurisy and empyema are the commonest complications of lobar pneumonia. In the bacteriological department of St. George's Hospital during 1901 the pus from 13 cases of empyema was examined. In 11 the diplococcus pneumonia was isolated in pure culture, and in 9 of these cases

the patients either had, or were just recovering from, pneumonia. Arthritis is said to occur, as a complication, in about 1 per cent. of all cases of pneumonia. In 31 cases recently collected by Cave, a pneumonia preceded the joint affection in 27, and in 19 of these only one joint was involved. Row, in a recent paper on 7 cases of pneumonic arthritis, points out that the joint affection may appear within a few days of the lung lesion. The joint effusion may be either serofibrinous or purulent.

Pneumococcus meningitis is frequent and important. Netter, in 25 cases of purulent meningitis, found the pneumococcus in 16, 4 of the cases being complicated with purulent otitis, 6 with pneumonia, and 3 with malignant endocarditis. In 4 cases of cerebrospinal meningitis, Monti found the pneumococcus in all, and in 3 of the cases lobar pneumonia was present.

Ear disease, either primarily or secondarily, may be caused by the pneumococcus. Zanfal records 6 cases, and Netter in 18 cases in children found the pneumococcus in 6. The meninges are frequently infected from the middle ear. Infective endocarditis is occasionally due to the pneumococcus. Osler found it in 16 per cent of his cases of malignant endocarditis, and Kanthack in 14.6 per cent. of the fatal cases of infective endocarditis in St. Bartholomew's Hospital from 1891-5 found pneumonia associated. Infective endocarditis does not, however, necessarily result from hemic infection. Peritonitis due to pneumococcus is rare. The pneumococcus may occur alone or associated with the streptococcus. Parotitis, as a secondary complication of pneumonia, is very rare.

Spitta reports the case of a child, seventeen months of age, who had a lobar pneumonia, arthritis of the left elbow joint, empyema, meningitis, and pericarditis. The pneumococcus was found in pus from the chest and the elbow joint, in the spinal fluid withdrawn by lumbar puncture, and in blood cultures.

Perrin: Basilar Meningitis Due to the Pneumococcus.
(*Annales de Médecine et Chirurgie Infantiles.* October 1, 1902, p 649.)

Acute, nontubercular, suppurating meningitis occurs nearly always on the convexity of the hemisphere. The present case is cited on account of its location at the base. A boy, aged six and one-half years, was taken suddenly ill, after an error in diet, with headache, vomiting, constipation and mental dullness. The family

history was negative and there was no tuberculosis. The child lived in unsanitary surroundings. The symptoms continued, becoming more marked, and two weeks later there was headache, vomiting, persistent constipation, retraction of the abdomen, dorsal decubitus, irregularity of pulse and respiration, photophobia, strabismus; gradual coma and slight convulsive movements followed, and death occurred one month after the onset. Koenig's symptom was absent and no paralyses were observed. Autopsy showed an abundant, thick, purulent exudate in the region of the Sylvian fissures and at the base. Many miliary abscesses appeared over the left hemisphere, but none at the base. The *diplococcus lanceolatus* was found in the exudate and ventricular fluid. The bacillus of tuberculosis was nowhere found, although very carefully sought for.

Smith, J. L., and Tennant, J.: On the Growth of Bacteria in the Intestine. (*British Medical Journal.* December 27, 1902, p. 1941.)

The experimental work of the writers was done upon dogs, rabbits and men. The intestine was removed immediately after death, stretched out on a table and, under proper precautions, incised. A loopful of the intestinal contents was taken and transferred to melted agar, which was then poured out into Petri plates. After twenty-four hours the number of colonies was counted and, if thought advisable, the colonies were planted out for further study. For purposes of comparison the small intestine was divided into ten segments and a loopful of contents taken from each. The results of the observations are shown in curves. In general, it is noted that the growth of bacteria is small, until the lower ileum is reached. Here the number of bacteria is greatly increased and below the ileocecal junction they are found in the abundance characteristic of the large intestine. In the small intestine the growth of bacteria is evidently inhibited; in the large intestine bacteria flourish. Inhibition of bacterial growth occurs in the stomach also and is there attributed to the presence of free hydrochloric acid. In the small intestine, however, in spite of the loss of acidity, there still remains this power of inhibition. It is hardly conceivable, therefore, that the acidity has much to do with question of inhibition, especially as the contents of the large intestine are acid more frequently than those of any other part of the alimentary tract, except the stomach, and yet the most abundant bacterial growth is found there.

The presence of an intestinal parasite produces a local reduction of the inhibitory power of the intestine, the number of bacteria at the site of the parasite being considerably increased, while above and below the numbers follow the usual curve. From this fact it is inferred that the inhibition of growth depends upon the secretion of the intestinal glands and not upon the acid juices of the stomach and bile, since the effect is reduced by the presence of the worms, but is reestablished at some distance lower down.

In a rabbit which has been innoculated with a fairly virulent species of *B. coli communis* obtained from the spleen of a typhoid patient, the bacillus was found in the bile and in the gall bladder. This, the writers consider, is evidence that, in morbid conditions, the bile, as well as the other secretions of the intestinal glands, loses its normal inhibitory power.

Investigations made a few hours after death upon the bacterial content of the intestine of a cyclist killed in a street accident showed that in the healthy human intestine the conditions of bacterial growth are the same as those in the dog or rabbit.

The writers consider that their investigations throw light upon the frequent inflammations in the region of the ileocecal valve, as this is just the region in which the power of inhibiting bacterial growth first fails and the bacteria, in consequence, multiply.

In a similar way their results explain the increase within the small intestine in the course of intestinal catarrh, typhoid fever, etc., of the organisms, such as *B. coli*, *B. proteus*, various micrococci, and the *B. enteritidis sporogenes* of Klein, all normally present in the intestine, but not in such numbers at the level at which they are found to abound in these disorders.

De Schweinitz, Dorset, and Schroeder: Some Facts which show that the Bacillus Tuberculosis of Human Origin May Cause Tuberculosis in Cattle, and that the Morphology and Virulence of the Tubercle Bacillus from Various Sources are Greatly Influenced by Their Surroundings. (*American Medicine.* November 29, 1902, p. 850.)

A study was made of tubercle bacilli derived from the bird, horse, cow, dog, pig, carp, and three varieties, differing in virulence, of human origin. Cultures were made from each of these groups and grown for varying lengths of time. There was uniformly change in the morphology of the different germs, those that had been grown longest being very materially different from

those cultivated for shorter periods. The most virulent germs showed less variation in appearance than the less virulent.

Chemical examinations of the bacilli were also made. The results obtained pointed to a closer resemblance between the bacilli of bovine origin and the virulent bacilli of human origin, than that which exists between the latter and attenuated bacilli of human origin.

Tuberculin prepared from a bovine culture produced the same characteristic reaction in man and in cattle as tuberculin obtained from a human culture, and *vice versa*.

To test the question whether bovine bacilli might become less virulent by passage through man, under due precautions a virulent bovine culture was inoculated into a monkey (as the nearest approach to man possible), and then from the monkey was reinoculated into a heifer. The results of the experiment suggested that the passage of the bovine bacillus through the monkey had diminished its virulence.

Three cultures isolated from cases of generalized tuberculosis in children have caused generalized tuberculosis in calves of about four months of age, after each calf had received an intravenous injection of an emulsion of 5 c.c. of one of the cultures in water.

Latham, A.: Etiology of Tuberculosis. (*The Edinburgh Medical Journal.* November, 1902, p. 415.)

The writer, in a dissertation for the degree of M.D., presents an extensive review of the literature and experimental work bearing on the routes of infection in tuberculosis. His conclusions follow:

(1) Hereditary tuberculosis is so rare as to be a negligible factor.

(2) It is not proved that tuberculosis patients hand down to their children tissues which are especially receptive to tuberculosis.

(3) Tuberculosis always results from a preexisting case of the disease, and the bacilli are conveyed by the mouth spray, by the expectoration or other discharge, and by means of foodstuffs, more especially milk.

(4) It is improbable that infection often takes place from air respired through the nasal passages.

(5) The tubercle bacilli, whether the infection is through the air, or through food, enter the new host by the mouth, in the majority of cases.

(6) The bacilli may then be destroyed by the natural defensive actions of the body in the alimentary and respiratory tracts, or they pass into various parts of the body in the following ways:

(a) By direct inhalation into the alveoli of the lungs.

(b) By being brought in contact with the mucous membranes common to the respiratory and alimentary tracts, such as the tonsils, and then by passing through these mucous membranes, either with or without local changes, to the lymphatic vessels, and so to the cervical, tracheal, bronchial, or other nodes. From these nodes the bacilli may pass either, (1) by direct continuity, (2) by the lymphatic vessels to the neighboring nodes, as, for example, from the cervical group to the mediastinal, (3) by some mechanism against the lymph stream, as, for example, from a tracheal node to the apex of the lung; or (4) by the blood stream, owing to direct ulceration into a blood vessel.

(c) By being carried to the stomach and intestines. The bacilli, if not destroyed in these situations, may then pass into the lymph stream, and so cause tuberculosis of the mesenteric nodes or of more distant parts.

(7) The spread of tuberculosis within the human body is not by the blood stream, save when generalized miliary tuberculosis is found.

(8) The spread of tuberculosis within the human body is by the lymphatic vessels and lymphatic lacunæ. This fact may explain why the lungs are chiefly affected in the adult, the bronchial nodes in the young child, as the age at which the change begins corresponds to the age at which a considerable alteration in the lymphatic paths in the neighborhood occurs, owing to the involution of the thymus.

MEDICINE.

Carhart, W. M.: Otitis Media in Infancy and Childhood.
(*Medical Review of Reviews.* Vol. viii., No. 10.)

The following conclusions are endorsed: 1. Earache in children is generally caused by acute inflammation of the middle ear, suppurative or catarrhal. 2. Infants and young children may have suppuration of the middle ear without giving satisfactory evidence of pain, or without rupture of the drum-membrane. 3. Purulent otitis media is nearly always present in acute infectious diseases of the gastrointestinal or respiratory tract of

young children, and probably stands in a causative relation to gastroenteritis and bronchopneumonia. 4. The cause of death in many acute and chronic infectious diseases, in meningitis and in the exanthemata, is the result of unrecognized and untreated abscess of the middle ear.

Abt, Isaac A. : Report of Ninety Cases of Typhoid Fever in Infants and Children. (*The Medical News*, No. 1,555.)

The youngest patient was but eight months old, while seven others were under three years of age. A third of all the cases occurred in the thirteenth and fourteenth years. There were but two fatalities. Treatment was essentially hydrotherapeutic, but, while cold bathing was badly borne, good results followed immersion at 90° F. The children were suspended in the tub by a hammock-like arrangement. Five minutes' exposure almost always reduced the temperature 2°, and, generally speaking, the fever fell progressively for ten or twelve minutes. The warmth of the patient caused the temperature of the water to rise to 92°. The children were constantly rubbed while in the tub. Drugs were but little used, and only on special indication (alcohol and strychnia for weak pulse, opiates for diarrhea and restlessness, etc.).

Swartzlander, Frank B. : A Case of Acute Diabetes in a Child Three Years of Age. (*New York Medical Journal*. No. 1,246.)

After some transient indigestion it was noticed that the patient required to be taken up often at night to urinate, while at the same time she began to call for water at night. The condition grew worse, progressively. Much milk was taken but there was no desire for food. Anemia and weakness soon supervened, but there was little emaciation. The patient was not seen until four days before her death, and hence received no treatment. Death took place from coma. Tests of the urine by different methods showed the presence of 3 or 4 per cent. of sugar. Autopsy was not permitted.

Rudolf, Robert D. : Kernig's Sign. Its Frequency of Occurrence. Causation and Clinical Significance. (*American Medicine*. Vol. iv., No. 19.)

The sign may sometimes be obtained in healthy adults but never in healthy children; a number of the latter were tested

with negative results. It may be caused by mere recumbency continued for days or weeks, and is naturally present in spastic conditions or wherever hypertonus of the muscles is found, as in meningitis. To obtain the sign the thigh of the recumbent patient should be flexed to a right angle with the body, when an attempt to extend the leg will be unsuccessful. A still better way is to extend the leg and then try to flex the thigh. Children might present the sign in meningitis, cerebellar disease, acute affections of the eye, or simple disuse of the lower limbs from lying in bed.

Griffith, J. P. C., and Ostheimer, M.: Typhoid Fever in Children of Two and a Half Years and Under. (*The American Journal of the Medical Sciences.* Vol. cxxiv., No. 5.)

Three hundred and eighty-seven cases were collected, of which 23 were congenital. A positive Widal reaction was noted in 44 cases only; in 2 cases it was negative during life but typhoid bacilli were found post mortem. Out of 98 autopsies recorded, typhoid bacilli were found in 14. There were 142 deaths in 278 cases, of which the results were given. In 117 the duration was as follows: Under one week, 12; one to two weeks, 28; two to three weeks, 29; three to four weeks, 26; four to five weeks, 14; five to six weeks, 5; six to seven weeks, 1; and seven to eight weeks, 2. Fever was noted in 143, diarrhea in 113, constipation in 11. Hemorrhage from the bowel occurred in 5, epistaxis in 5, and intestinal perforation in 2. There were 9 relapses.

The main point at issue, the fact that typhoid fever is *not* so uncommon in early life as is often claimed may be considered established.

Koplik, H.: Empyema in Infants and Children; Its Frequency, Etiology, Symptomatology and Prognosis. (*The Medical News.* Vol. lxxxi., No. 11.)

Fully 40 per cent. of the pleurisies in infancy and childhood are purulent. Bilateral involvement was found in 12 per cent. of the author's personal cases. In most children before the age of five years an effusion is very likely to be purulent. Ninety-five per cent. of the cases follow some acute affection of the lung. In 69 per cent. the pneumococcus was found in the pus, either alone or with the streptococcus pyogenes. In 15 per cent. the streptococcus alone was found; in 9 per cent. the staphylococcus, and in 7 per cent. the tubercle bacillus was present or the exudate was

free from bacterial contamination. A hemorrhagic empyema has not the serious significance in children that it has in the adult, as it may be rheumatic, if serous, and scorbutic, if purulent. The signs of greatest utility in making a diagnosis are the percussion note, the fremitus and the displacement of the viscera. Exploratory puncture should be done in every suspicious case. The prognosis of the metapulmonic form is good. The complication most to be feared is bronchopneumonia. In children the outlook in the tuberculous form of empyema is much better than in the adult subject.

Finizio, Gaetano: Coagulation of Milk by the Bacterium Coli. (*La Pediatria.* Vol. x., No. 7.)

The bacterium coli secretes a diastase which coagulates milk in a manner analogous to the action of gastric chymosin. It is possible that the bacterium coli may induce lactic acid fermentation and thus give rise to ordinary curdling; but a comparison of the curds appears to show marked differences, and hence justifies the assumption that the bacterium coli has a direct diastasic action upon the casein, by which the latter is coagulated and not simply precipitated in an acid medium.

Sidloner, H. : A Case of Persistence of the Ductus Arteriosus Botalli. (*Arch. f. Kinderhk.* Vol. xxxiv., Nos. 5 and 6.)

The case is that of a four year old girl, the diagnosis of persistent ductus arteriosus being based upon the following signs: A diastolic murmur loudest in the second intercostal space; fremitus felt over the same area and coincident with the murmur; the transmission of the murmur over both subclavian and carotid arteries, and the fact that it is heard very well in and below the interscapular region behind; hypertrophy of the right ventricle; dullness over a "band-like" area along the left sternal border; absence of cyanosis and all other symptoms of stasis; bradycardia noticed since the child was one year old. All other malformations of the heart could be excluded. From the loudness and duration of the murmur it was assumed that the open ductus was pretty long and wide. The prognosis of the condition is relatively good. As no mechanical etiological factor was present in this case, the persistence of the duct must be attributed to the fact that the special histological structure of the walls of the duct was absent in this case, and that its involution was therefore interfered with.

Babinski: Hereditary Syphilitic Tabes. (*La Presse Médicale*. October 29, 1902, p. 1042).

I. The first case presented was a young woman, twenty-two years old, with Hutchinson's teeth. At birth she had two anal ulcerations, at nine years "tic convulsif"; with these exceptions she enjoyed good health until her eighteenth year, when she developed an interstitial keratitis. For the past two years she had been subject to crises with acute exacerbation of pain. There was an Argyll-Robertson pupil and some weakness of the left patellar reflex. The father contracted syphilis and infected his wife while she was carrying the child. He himself shows the characteristic signs of tabes.

II. The second case was a girl, fifteen years of age. Her pupils did not react to light and the patellar and Achilles reflexes were abolished; there was dysuria. Examination of the cerebrospinal fluid showed a lymphocytosis. She presented a left choroiditis and mental symptoms which were characteristic either of a dementia precox, or a diffuse meningoencephalitis. Her father was also tabetic, and at the gastric crisis was treated for gastritis.

The author believes such cases to be frequent, and thinks their citation of immense practical value in calling for the early, heroic and prolonged use of mercury.

Curtis, F. C., and Shaw, H. L. K.: Rubella Scarlatinosa. (*Medical News*. December 20, 1902, p. 1162).

The writers report an outbreak which affected about one-half the inhabitants of the village of Round Lake, N. Y. In all there were over 150 cases; the majority of the patients were adults, but many children were affected. The onset of the disease was sudden, with malaise, headache, sore throat, slight fever, and enlargement of the superficial lymph nodes, especially the posterior cervical group. Cultures from the throat showed no Klebs-Löffler bacilli. The fever was not high, the pulse was not rapid, and the urine never showed albumin. The eruption generally resembled scarlet fever, but showed a macular quality even when confluent; over some areas the mottled appearance was pronounced, and sometimes there was a dullness of color like that of measles. Its behavior under pressure was not that of scarlet fever. But one death attributable to the epidemic occurred, and that occurred in the case of a woman past seventy. The compli-

cations and sequelæ observed included rheumatism, bronchitis, pneumonia, erysipelas, erythema nodosum, acute otorrhea, quinsy, pleurisy, cystitis and myocarditis.

Stelwagon, H. W.: Concerning Some Vaccinal Eruptions. (*The Journal of the American Medical Association.* November 22, 1902, p. 1291.)

The writer reproduces Frank's extensive classification, but speaks only of the more common of these eruptions.

The most frequent and usually more or less evanescent and harmless are localized or general erythema, urticaria, erythema multiforme, a regional vaccinia or vaccinia-like eruption, impetigo contagiosa and a pseudoerysipelatous or erysipelatous inflammation or other accidental regional dermatitis. The most important of these, dermatologically speaking, are erythema multiforme, urticaria, pemphigoid eruptions and impetigo contagiosa.

Eczema or psoriasis may find a starting point in the vaccination. The writer cites an instance where lupus developed at the site of vaccination. Syphilis, he says, has been transmitted by vaccination, but is now rarely observed. He quotes reports of the transmission of leprosy by vaccination, but adds that, since the practical disuse of human virus such constitutional maladies as leprosy, syphilis, etc., can scarcely occur in vaccination at the present day.

Steven, J. L.: Case of Pericardiomediastinitis Associated with Tuberculous Peritonitis and Ascites. (*Glasgow Medical Journal.* November, 1902, p. 363.)

The patient, a girl of nine years, was under observation in the hospital for four months. During this time she had for some days definite pericardial friction sounds. The face was pale and puffy, the external jugular veins were knotted and engorged. She had a cough with evidences of involvement of the lungs. The temperature was elevated most of the time and there was persistent tachycardia. There was marked ascites.

At autopsy great thickening of the parietal layer of the pericardium was found, and upon it there was a heavy deposit of compressed fibrin. The left lung was adherent to the chest wall and to the pericardium and contained numerous caseating foci. The heart was small and covered by fibrin. There were generalized fibrous adhesions in the abdominal cavity and the serous layer of the intestines was covered with miliary tubercles.

Wende, G. W.: Epidermolysis Bullosa Hereditaria. (*Journal of Cutaneous and Genitourinary Diseases.* December, 1902, p. 537.)

The chief points of the affection are summed up, as follows: The evidence of the formation of vesicles and blebs at points subject to traumatism and irritation; the marked infiltration of the skin after the lesions subside; the arrangement of the bullæ in concentric patches; the decided changes in the nails; the lack of hirsute growth upon the scalp and the absence of eyebrows and eyelashes; the general tenuity of the skin.

The case recorded is that of a boy, seven years of age, whose trouble began when he was three weeks old, and continued, with intermissions, up to the present time. The lesions were especially marked about the mouth and anus, and upon the hands and feet. No manner of treatment had had any pronounced effect upon the disease.

Edleston, R. S. C.: A Case of Friedreich's Ataxia. (*The British Medical Journal.* November 22, 1902, p. 1642.)

E. A., a girl aged fourteen years. Family history good. No previous illness, except measles. Her trouble was first noticed at the age of seven, when it showed itself in awkwardness in walking and in always carrying her head "poked forwards." Later the speech became drawling and indistinct, and she suffered from pains in the joints. Following the attack of measles she could not stand or walk so well as usual. In November, 1897, her condition was described thus: In the sitting posture she remains quite still with her head bent forward. When spoken to, the head swayed from side to side as she looked up. The arms were kept semiflexed and the wrists flexed with the fingers extended. The pupils were dilated, but equal, they reacted normally, and there was no nystagmus. The tongue was normal. The speech was drawling and indistinct; the memory good. Knee-jerks and ankle clonus were absent. She stood with her feet widely separated and her head thrust forward. In walking she rolled, and there were choreiform movements of the head, shoulders and arms. In picking up anything, the hands swayed from side to side, the fingers were extended over the object and then grasped it suddenly. She had a lateral curvature of the spine, talipes equinus, and the deformity of the great toes described by Marie. Skin reflexes and sensation were normal. Five years later all the symptoms were much worse and the patient was almost helpless.

SURGERY.

Whitman, Royal: Treatment of Congenital Dislocation of the Hip. (*The Medical News.* No. 1556.)

The cases treated by the Hoffa-Lorenz operation may thus be classed: (1) Permanent replacement, with final results varying from practically perfect functional cure to ankylosis and deformity; (2) imperfect reposition, in cases of which there is often free motion, and the final result is usually somewhat better than after a simple transposition of the bloodless method; (3) failures, it being clear that after the open operation there is little excuse for complete failure. It may be stated that the statistics of the open operation, and to a far greater degree of the bloodless method, suffer because of the improper performance of the operations and the improper selection of the cases.

The author is inclined to the following opinions: (1) That the more complete fixation that may be obtained by carrying the plaster bandage below the knee after reduction, combined in certain instances with lessened outward rotation of the limb, is an improvement on the ordinary technic of the Lorenz operation in the treatment of young children; (2) that a longer period of fixation in an attitude approximating the normal is necessary to assure the remoulding of the acetabulum in old subjects; (3) that arthrotomy and osteotomy must be regarded as necessary supplements to conservative treatment; (4) that the original Hoffa-Lorenz operation offers a prospect of a better ultimate result than transposition and that it must therefore be held in reserve as a final resort after failure of the less radical treatment.

Rechsner, John F.: The Surgery of the Child (*New Orleans Medical and Surgical Journal.* Vol. lv., No. 5.)

Some of the special features of pediatric surgery are as follows: Congenital deformities are practically repaired in infancy and childhood (hare-lip, cleft palate, spina bifida, etc., etc.). Rickets is also an important factor in the surgery of these young subjects. Many conditions in which operation would be indicated in the adult and, to some degree in the child, may undergo spontaneous recovery with a little artificial aid, as in the closure of certain hernias. While childhood is generally recognized as a favorable period for operative work, this advantage is held to be offset by an increased liability to shock from anesthesia and hem-

orrhage. The danger is a real one in infancy but is exaggerated in older children, in whom the recuperative power is remarkable. The question of pediatric surgery is of especial importance in cases of suspected hip disease and Pott's Disease.

Webb, J. E.: Malignant Tumor of the Kidney in Childhood. (*The Lancet.* No. 4129. 1902.)

A six-year-old girl in ordinarily good health was suddenly attacked with abdominal pain and tenderness especially in the right iliac region. The abdomen was board-like; temperature 103°. The diagnosis was peritonitis probably arising from appendicitis. At the end of a week the peritonitis had subsided under treatment, and a large, firm swelling remained in the right side of the abdomen. An operation was performed, and the distended capsule of the right kidney found and opened; it contained broken down nodules evidently malignant. Hemorrhage caused death two hours later.

Microscopic examination revealed the growth to be composed of areas of tubular gland tissue embedded in a spindle-cell sarcomatous matrix; many nodules of cartilage were also present.

Raymond, F.: A Case of Cerebellar Syndroma. (*La Presse Médicale.* Tome II., No. 81.)

Two months after an attack of measles, in a boy thirteen years old, the following symptoms appeared and became progressively worse: Headache, vomiting, amaurosis, ataxic gait, exaggerated reflexes, vertigo, nystagmus and muscular asthenia. The fluid removed by lumbar puncture proved to be negative, and the procedure had no palliative effect upon the symptoms. The diagnosis, of cerebellar tumor or abscess having been made, an operation was performed. The boy died four days later. At the autopsy an inoperable tumor was found at the base of the cerebellum, involving principally the left hemisphere and the vermiform. Histological examination proved the tumor to be a round cell sarcoma of meningeal origin.

Koslowsky, G.: Treatment of Tuberculous Glands. (*Roussky Vrach.* February 9, 1902.)

Operative intervention is the method which, according to this author, will give the most favorable results in tubercular adenitis. General treatment ought to be considered as only an auxiliary of

local intervention. Antiseptic injections have not had satisfactory results.

The writer's statistics include 127 cases of extirpation of tuberculous lymph nodes. In 63 per cent. of the cases, the disease had not reached the stage of ulceration; nineteen times ulcers had formed, and in 18 cases there were old cicatrices. In other words, the greater number of these cases before operation presented advanced lesions. The operation leads in most cases to healing by primary union. He has had nineteen recurrences, 1 case of secondary hemorrhage, but no deaths. For the author this method is the preferable treatment of tuberculous adenitis. It is contraindicated under the following conditions:

(1) Very extensive process, with a large surface of periadenitis.

(2) Extension skin lesions.

(3) Pulmonary tuberculosis.

(4) General tuberculosis.

Firkit: A Case of Atypical Hypertrophy of the Breasts.
(*La Presse Medicale de Belge.* November 16, 1902, p. 723.)

The present case refers to a girl of twelve years with bilateral hypertrophy of the breasts; the weight of one breast was 2,250 grams, of the other 2,050 grams. Pain, caused by the excessive weight, and the effect on the general health necessitated amputation.

Microscopic examination showed a glandular and connective tissue new growth with an entirely irregular and atypical arrangement of the glandular epithelium—a fact not previously observed in the very few cases of mammary hypertrophy heretofore recorded. The neoplasm showed no inflammatory character and does not appear to be due to any external cause. It should be considered as a malformation having its origin in an irregular embryonal development.

Froelich, R.: On Umbilical Granulations of the Newly Born, and Operation for Umbilical Prolapse of Meckel's Diverticulum. (*Rev. Mens. des Mal. de l'Enf.* November, 1902, p. 517.)

A boy, five years old, presented a small, red tumor at the umbilicus, secreting a clear, slightly bloody fluid and occasioning

no trouble except a slight erythema. An operation was performed and the diagnosis of a prolapsed Meckel's diverticulum was confirmed. The child made a good recovery.

From a clinical point of view it seems useful to apply the term "umbilical fungus" to every red tumor following the falling off of the cord stump, and to divide such growths into three classes: (a) granuloma; (b) intestinal or diverticular, and (c) urinary, containing a vestige of the urachus. The last may communicate with the bladder. The first is easily recognized by its small size and the facility with which it bleeds, and the other two are readily differentiated, especially when they secrete intestinal fluid or urine.

Bertran, José: Periostitis of the Inferior Maxilla of Traumatic Origin. (*La Medicina de los Niños*. Vol. iii., No. 55).

The patient, about two years old, was admitted to the clinic with a swelling over the posterior third of the left side of the lower jaw. The lesion was hard, reddish, and hot, and the superjacent skin tense and shining. Lymphadenitis was excluded by the fact that the swelling appeared to be attached to the bone and could be felt within the mouth; and a diagnosis was made of acute periostitis. The molars were in good condition, so that a dental origin could be excluded. The lesion was probably due to a blow received *in loco*, and infection doubtless resulted within the mouth. The case readily yielded to ordinary surgical management.

Krouse, L. J.: An Improved Method of Circumcision. (*The Cincinnati Lancet-Clinic*. November 29, 1902, p. 557.)

A grooved director is first passed between the dorsum of the glans-penis and the foreskin up to the corona. Along the director a sharp-pointed bistoury is passed and the foreskin transfixed. With the bistoury in position, the director is removed and is then reintroduced from above through the opening made by the knife. Having passed the director through this opening, the knife is then withdrawn. The foreskin is next pierced on one side of the frenum with knife and the director is passed through this, also. One-half the foreskin is thus stretched over the director which lies in the sulcus posterior to and parallel to the corona. The parts are made taut with the thumb and index finger and are then divided with scissors. The same manipulation is repeated on the

other side. The foreskin is detached all around and finally severed at the frenum. The line of excision is perfectly straight and smooth.

Burke, C. V.: Congenital Absence of Pectoral Muscles. (*Medical Record.* December 20, 1902, p. 1976.)

The patient, a boy of nineteen years, came to the dispensary to find out what was the matter with his chest. He had noticed the peculiarity of that part three years before and had been taking exercises to develop what he thought was weak muscle. When stripped, the absence of the anterior border of the left axilla was at once apparent. The sternal portions of the pectoralis major and minor were absent; the clavicular portion of the pectoralis major was present and was particularly well developed. The ribs were flattened on the sides, more so on the left, and on that side were thrown forward at the costosternal junction, accentuating a sternal depression (funnel chest), extending from the third rib. The absence of the pull of the two pectoral muscles must have contributed considerably to the production of this deformity.

Donoghue, F. D.: A Case of Vaccination and Appendicitis. (*Annals of Gynecology and Pediatrics.* November, 1902, p. 674.)

A girl, three years of age, was vaccinated upon the left leg, October 25, 1901. Ten days later she began to have pain in the abdomen, tenderness in the right iliac region, occasional vomiting, fever and rapid pulse. Five days later she was operated upon and a gangrenous appendix found in a partially walled-off cavity containing pus. Cultures made from the pus showed a pure growth of colon bacillus. The writer reports the case as one in which peritonitis would have been attributed to the vaccination but for the results of the operation.

Doran, R. E.: Operative Interference in Epilepsy. (*Albany Medical Annals.* December, 1902, p. 643.)

At Craig Colony there have been twenty-nine patients trephined either before or after admission. Twenty-four cases were operated on prior to admission and 5 after admission. Out of this number 6 were improved, 19 were unimproved, 2 were in doubt, and 2 were worse after the operation.

The writer also reports four oophorectomies for this condition. The indications for this operation are found when the patients are

becoming steadily worse, when the attacks are worse or occur more frequently at the menstrual periods, and particularly when there is some ovarian disease, which would justify operation in a nonepileptic patient. Of the 4 cases of oophorectomy, all seem to be in better general condition and to be improved also with regard to their epilepsy, but the writer refrains from drawing any conclusion as to the permanent effects of the operation.

Freeman, Leonard: The Treatment of Tubercular Glands of the Neck. (*Journal American Medical Association.* December 6, 1902, p. 1429.)

After a general review of the methods of treatment employed for this condition, Freeman draws the following conclusions:—

(1) The gravity of tuberculosis of the cervical lymphatics, both as regards local deformity and remote secondary manifestations, is generally underestimated.

(2) General treatment, especially hygienic, is of the utmost importance, both in the cure of incipient trouble and in the prevention of relapses following operations on more advanced cases, most recurrences being due to neglect of such measures.

(3) Residence at the seashore has long been recognized as of great benefit; but there is reason to believe that a high and dry climate, such as that of Colorado, with its rarefied, stimulating atmosphere and abundant sunshine, possesses superior advantages.

(4) A point of extreme importance in local treatment is to abolish sources of infection, in the teeth, tonsils, nose, ear, scalp, etc., and neglect of this is apt to result in failure.

(5) Nonoperative treatment is often of doubtful utility, except in the beginning of the disease.

(6) Pulmonary involvement does not contraindicate operation, at least in Colorado, except in advanced cases.

(7) Curettement is applicable to sinuses, tubercular ulcers of the skin, and where complete removal would be attended by too much risk. In all other instances a thorough operation should be done.

(8) The size and shape of the incision should be adapted to the particular case. It should be free enough to permit of thoroughness and safety.

(9) The chance of permanent cure following operation is probably better in Colorado than in lower and less favorable altitudes.

HYGIENE AND THERAPEUTICS.

Blackader, A. D.: *Résumé of the More Recent Advances in the Artificial Feeding of Infants.* (*The Montreal Medical Journal.* Vol. xxxi., No. 7.)

The indigestibility of the proteids in cow's milk may be overcome by the addition of water, cereal gruels, or whey. The addition of carbohydrates is necessary to conserve nitrogenous metabolism and to enable the infant to gain even with a great reduction in the amount of nitrogenous element ingested. An inability to digest a due percentage of fats is supplementary to the difficulty in the digestion of the proteids. Lessening the fat to 1 or 1.5 per cent. in troublesome cases may do good. The fat may be gradually increased as digestion improves.

Milk obtained in the country from healthy pasture-fed cows milked in the open fields certainly is better not sterilized, but milk obtained in the city from more or less unknown sources, and under unknown conditions, should, in my opinion, be pasteurized, especially in summer weather.

The following practical points may be emphasized. An infant fed at the breast, who suffers persistent indigestion and at the same time fails to gain in weight, should be taken from that breast. If, however, the infant gains in weight it is better to try and correct the indigestion by treatment directed both to mother and child. To attempt artificial feeding in such a case often only adds to our troubles.

In commencing artificial feeding begin with a weak mixture, and work up by frequent but slight changes to a point of tolerance. By still continuing a gradual but steady increase, never beyond the point of easy digestibility, we can in a few weeks attain to a food sufficiently nutritious in all its ingredients and yet fully digestible and assimilable. It is a serious mistake to begin on a mixture too strong, and work down after weeks of indigestion to the point of tolerance.

The question how long an infant should be kept on a modified milk diet is an important one. It is generally conceded that by the tenth or twelfth month a child should be able to digest almost pure milk. By this time, however, I prefer a mixed dietary. Milk is very deficient in iron. An infant comes into the world with a high percentage of hemoglobin; this gradually diminishes so long as he is fed on milk alone. Only when a mixed diet is substituted for a pure milk diet does the percentage

begin to rise again. Cereals and meat juice and broths are rich in iron.

Oatmeal is amongst the richest in iron of the cereals and properly cooked forms a useful addition to the infant's dietary. Shortly after the first twelve months eggs lightly cooked may be permitted at one of the meals in the day. The great richness of the yolk in fat, lime salts, and in the organic compounds of phosphorus and iron, makes it a valuable food for the rapidly developing child. At this period also, food involving somewhat long mastication, such as biscuits and crusts of bread, become necessary, for the development of the maxillary bones and muscles.

Abt, I. A.: **Forty Cases of Typhoid Fever Treated with Benzoyl-Acetyl Peroxide (Acetozone).** (*The Therapeutic Gazette*. Vol. xxvi., No. 10.)

The patients were from two-and-a-half to eight years of age. Two died, one from pneumonia and one from great pyrexia, on the fifth day. The Widal test was positive in every case. The diazo-reaction was present in twenty-five, absent in eight and not tested in seven. Epistaxis occurred in 4 cases, and intestinal hemorrhage twice in one patient. Stupor and tympanites were almost entirely absent.

Acetozone does not seem to act on the heart or respiratory organs. It is most easily taken in aqueous solution to which a few drops of orange extract has been added. As the powder, plain or mixed with jelly, syrup or milk, it is not palatable. The characteristic typhoid fetor of the stools was markedly diminished. The average duration of the fever after the acetozone was begun was thirteen and one-half days in 37 cases, including two relapses. The average duration of the entire illness in 36 cases was twenty-three and three-fifth days.

Gordon, M. H.: **The Cause of Return Cases of Scarlet Fever.** (*The British Medical Journal*. No. 2172. 1902.)

The streptococcus scarlatinæ can, in some cases, persist in the pharyngeal mucus for some time after the attack. The ears (through the Eustachian tubes) and the nose are possible outlets for infective material persisting in the pharynx; and infective material from the mouth and throat may be transmitted directly (by kissing) or indirectly (by cups, towels, etc.), and finally by direct aerial convexion, as the experiments of Koeniger have shown.

There is ground for supposing that, if we could get efficient disinfection of the pharyngeal mucous membrane at the beginning of scarlet fever, we should be able to prevent not only rhinorrhea and otorrhea but also the fatal septicemia to which the majority of deaths from scarlet fever appear to be due, for the fatal issue in these cases has been shown to be due to a streptococcus invasion starting from the pharyngeal mucous membrane.

Experiments were instituted to determine how far it is possible to disinfect the mucous membrane of the throat and what is the best means of doing so. The result up to the present has been that the disinfectants which have been found most effective in reducing the number of organisms in the throat are potassium permanganate and liquor chlori. Two hours after gargling sufficiently strong solutions of either of these two disinfectants, the number of organisms in the saliva is still reduced by over 80 per cent., as compared with the number present before gargling. The writer thinks, therefore, that if the degree of throat disinfection which these results indicate can be obtained was practised as a matter of routine in all cases of scarlet fever, from the earliest stage of the disease, no matter how mild the attack might clinically appear to be, good results would be obtained in the way of preventing complications, and that amongst other things a diminution in the percentage of return cases would probably ensue.

Hopkins, Frank Tucker, and Others: The Treatment of Nocturnal Incontinence of Urine in Children. (*New York Medical Journal.* No. 1,248.)

Hopkins in his successful competitive answer to "Prize Question, No. XVII.," regards nocturnal enuresis as due most frequently to reflexes from the generative or digestive organs—due for example to adherent prepuce and clitoris, constipation, pinworms, etc. Irritating urine should also be included in this class of causes.

If spasm of the detrusor appear to constitute the chief mechanism of enuresis the author recommends lycopodium tincture 15-30m four times daily, with or without belladonna. Passage of a sound to distend the urethra is also well spoken of. Otherwise the treatment must be causal in character and directed to the source of peripheral or local irritation.

R. I. Sommerkamp, another competitor, speaks of eye strain as a common cause of enuresis.

H. P. Marsh gives belladonna in increasing doses, the initial dose being one drop at night and the daily increment one drop. This treatment is pushed until the patient's face becomes flushed.

C. B. Reynolds would use faradization if the neck of the bladder as in a paralytic state, or in other words when the cause is not a local or reflex irritation, but seated in the spinal cord, peripheral nerves or bladder muscles themselves.

Pope, Frank M.: Arsenic in the Treatment of Chorea.
(*British Medical Journal.* No. 2, 181.)

The tongue must be clean before the arsenic treatment is begun, and the diet throughout must be bland and readily digestible. The drug should be given dilute and in the same dilution throughout. Thus $2\frac{1}{2}\text{m}$ liquor. arsenicalis are given in an ounce of water, and the dilution increased with the dose. As the latter increases in size, it should be taken during, instead of after, the meal. The daily augmentation should be $2\frac{1}{2}\text{m}$ per dose, watching the patient closely for signs of intoxication. Recumbency in bed is an essential part of the treatment. If vomiting sets in the medicine should not be discontinued at once; and if vomiting persists, an intermission of twenty-four hours is indicated.

Charlton, G. A.: Preliminary Note Upon Employment of an Antistreptococcus Serum in Severe Cases of Scarlet Fever.
(*The Montreal Medical Journal.* Vol. xxxi., No. 10.)

It is the author's opinion that in scarlet fever the streptococcus leads to a secondary infection, and that the severity of the attack is due to the symbiotic action of this organism and the causative agent of scarlet fever upon the susceptible individual. Antistreptococcus serum is therefore indicated, for it appears that if the effects of the streptococcus could be counteracted and the coccus destroyed, the case would resolve itself into a less severe type and the prognosis would become more favorable.

Antistreptococcus serum was employed in 15 severe cases, 13 of which recovered promptly. One died four hours after admission, and the other death was due to laryngeal diphtheria five days after admission. The results of the serum injection were: Rapid subsidence of pyrexia, decrease of the pulse-rate with improvement in tension and rhythm, prevention or marked amelioration of such complications as cervical adenitis, otitis media and albuminuria, and rapid and favorable convalescence in the majority

of cases. The remarkable and rapid subsidence of serious symptoms, in case after case, after the use of the serum, is to be emphasized.

McGee, J. B.: Anginose Scarlatina Complicated with Measles and Diphtheria. (*Cleveland Medical Journal*. November, 1902, p. 548.)

Hilda M. was taken with high fever and on the following day showed a scarlatinal eruption upon the body. She had a cough resembling that of measles, to which disease she had been exposed about one week previously. The eruption persisted and she developed severe cerebral symptoms. On the fourth day a typical measles rash appeared upon face and body. The cough persisted and coryza was present, but without suffusion of the eyes. On the fifth day membrane appeared upon both tonsils and uvula, and there was a profuse sanious discharge from the nose. Two thousand units of diphtheria antitoxin were given and the dose repeated in six hours. Bacteriologic examination showed the pneumococcus in great numbers, with the streptococcus and diphtheria bacillus in lesser numbers.

Eighteen hours after the first injection the membrane had disappeared from the tonsils, but new membrane had formed on the soft palate and pharynx. Antitoxin was repeated, till 12,000 units were given in forty-eight hours. Bacteriologic examination showed the pneumococcus alone. At this time the general condition was low, both sides of the neck were greatly swollen, the head was retracted, there was delirium, later a semicomatose condition. A suppurative otitis media developed at the end of the second week, but subsided after a month's treatment, and albumin and casts had disappeared from the urine at the end of the sixth week. Alcohol and the tincture of the chlorid of iron were used internally. The author thinks that especial benefit was had from the use of the antitoxin and of saline solutions, administered both by enema and subcutaneous injection.

Gowie, James M.: Two Cases of Consumption Probably Infected by Tuberculous Milk. (*British Medical Journal*. November 29, 1902, p. 1706.)

The patients were a boy, aged seventeen years, and his sister, aged five years. There was no family history of consumption. The boy's illness began with rapid loss of flesh and strength; later an ischio-rectal abscess developed and, after discharging for three months, was operated upon. One week after operation, the

patient was found to have diabetes. After the operation cough, which had not been present before, developed rapidly, and at the time of report the sputum contained tubercle bacilli.

The girl's illness began with abdominal pain and vomiting. Appendicitis was diagnosed, and an abscess later formed and discharged at the umbilicus. An operation was done and the condition judged to be tuberculous.

The author's inference, from the clinical course of the disease, was that in both cases the affection began in the abdomen.

During the period in which the patients developed tuberculosis the family had used milk from two sources. Professor Delépine had had samples from both and proven them tuberculous by injection into guinea-pigs. In the herds from which the milk came, cows with tuberculous udders were found in both instances. No source of infection apart from the milk could be found in the case of either patient.

Jordan, W. R.: Habitual Constipation in Infancy. (*Birmingham Medical Review*. November, 1902, p. 275.)

The importance of the influence of constipation is not generally recognized. It is often the precursor, if not the cause, of serious illness. The condition may be marked by the presence of a diarrhea excited by the fecal masses in the colon.

Among the causes of constipation, lesions of the anus, such as fissure or ulcer, disproportionate length of the large intestine, intestinal catarrh from improper feeding or exposure to cold, deficiency of fluid, deficient peristalsis, constipation in the mother, and, finally, the unauthorized administration of opium by nurses, are emphasized.

Treatment, to be permanently successful, must be undertaken on dietetic and hygienic lines. Any defect in the diet, excess of proteid, insufficiency of sugar or fat, must be corrected.

Attention to the details of hygiene is of value. Abundance of water should be given. Massage of the abdomen helps. Castor oil or calomel should not be used. The salines are preferred, when drugs are required. To infants over six months two grains of magnesia and eight grains of magnesia sulphate are given three times a day; half these quantities to those under six months. When large doses of salines are required, cascara, belladonna and nux vomica may be substituted with advantage. For immediate relief glycerin suppositories or enemata of soap suds may be employed.

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Original Communications.

AN ANALYSIS OF TWENTY-SIX CASES OF MONGOLISM.*

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LITERATURE.—Until recent years very little has been written on this subject except in Great Britain. Two German and Austrian references, and five American ones (up to February, 1902) are all that could be discovered in the magazine literature of these countries. From French sources I could get nothing. Neumann in 1899 wrote, "This form of idiocy is nowhere mentioned in German literature," but states that it is better known in England. Many of the observations published differ not only on minor but on important points, the difference being due, in some instances, to confusion of this condition with cretinism.

NOMENCLATURE.—In 1866 Dr. Langdon-Down¹⁸ suggested the term "Mongol" or "Kalmuc" to describe a genus of congenital imbecility the members of which presented certain physiognomical resemblances to the members of this ethnological group. Although his classification of the varieties of mental feebleness has now been abandoned, the term "Mongol" has survived, being an expressive and descriptive one.

Several definitions more or less unsatisfactory have been offered of this condition. They have been called "furfuraceous cretins." They have been classified under "simple congenital cases without any other defect of skull and limbs," although

* An abstract of a thesis for the degree of M.D., Edinburgh. The cases were for the most part met with in the out-patient clinics of Drs. Still and Hutchison, Great Ormond Street Hospital for Children, London.

brachycephaly, or, at any rate, a diminution of the normal difference between the lengths of the anteroposterior and transverse diameters of the cranium, is one of the constant features.

Mongolism is different from all the other congenital types of mental feebleness such as cretinism, congenital hydrocephaly, microcephaly and the birth palsies. By some they are ranked as imbeciles, by others as idiots. My own cases varied much, some being of a distinctly low grade, though others again are the opposite. The general term "mental feebleness" so much used in America seems more satisfactory. Mongolism might perhaps be defined as a type of mental feebleness, always congenital in origin, characterized by certain constant cranial, and later by lingual, changes.

THE GEOGRAPHICAL DISTRIBUTION seems to be that of the Caucasian race. My own cases represent London (and its suburbs such as Poplar, Ponders End, Homerton, Woolwich, Leyton, Hampstead, Tottenham, Edmonton) Kingston, Harrow, etc. I have seen cases in Liverpool, Edinburgh, and in Sydney, New South Wales. One case came from Magdeburg, Germany, in which country Neumann,²³ the only German writer who has given attention to the subject saw 13 cases in three or four years; and another from Roumania. Carl Looft²¹ reports cases in Norway, and it is known in Austria. Lombroso long ago gave an account of one in Italy. I have seen a case in South Africa; Dr. Ireland⁹ mentions one from Australia; and another which I saw came from Bermuda. Thus mongolism probably exists everywhere; it is found in the country and in the towns, and no white race is exempt. Two of my cases were among Jews. It seems to be less common in Scotland (3 per cent. of all mentally feeble children) than in England (5 to 10 per cent.) 1-18. It is a fairly common condition in all large out-patient clinics in London, and is at least four times as common as cretinism. In America West³⁹ saw 9 cases in four years.

ETIOLOGY.—A history of drunkenness in the parents was found in 4 cases, of consanguinity in none. All the children were born in wedlock. Some children were born and had always lived in the country, in others the environment was bad, so that no special connection was traceable. In 4 cases there was a family history of insanity or eccentricity; in 3 the father was violent in temper; in 1 the father committed suicide; in 4 the mother was neurotic and excitable (in 1 case with suicidal impulses). In

3 cases there were twins or triplets in the family; in 3 the intra-uterine movements were hardly felt; in 3 the mongol was premature; in 1 a previous child was anencephalous; in 8 the labor was prolonged or complicated; and in about half the cases a statement of fright or worry was volunteered.

Langdon-Down¹⁰ says that mongolism arises chiefly from tuberculosis in the parents, but this occurred in only 38 per cent. of my cases.

Sutherland⁴ found evidence of syphilis in 11 out of 25 cases, and suspected it in three others. Still⁷ found it only once in his cases, and it was present in only 3 of mine.

Much stress has been laid on bad health on the part of the mother during pregnancy. This occurred in only 15 of my series. In the remainder it was perfect. In 1 case the mother had two healthy children and then a mongol, her health being better during the last pregnancy than during the former. In proof of this theory it has been stated that mongols are often the last of a large family, 40 per cent. according to Shuttleworth,¹ 10 out of 18 cases according to Still. But 3 of my cases were first-born, 7 were third, 1 fourth, 6 fifth, 1 sixth, 2 seventh, 2 eighth, 1 ninth, 1 tenth and 1 twelfth. In the cases of all the first-born children, in the sixth-born case and in one third-born case, healthy children have been born since. In many cases, however, the parents were over forty years of age. As regards causation clinical evidence has helped us very little.

SEX.—In my own series there were fifteen males and eleven females. Of 80 cases from all sources 56 per cent. were males and 44 per cent. females.

THE SYMPTOMS are present from birth, a point insisted on by Dr. John Thomson,⁶ and confirmed by 2 of my cases in a remarkable way. In one an aunt remarked when the child was born, "Oh! Isn't she like a Chinese baby." When the other was eight weeks old the grandfather said "Well, baby, you didn't have to go to Japan for your eyes." Thus in well marked cases the peculiar physiognomy attracts the attention even of the laity. The trunk and limbs though small are well formed. Those features which are characteristic are found in the skull, eyes, tongue and hands.

The Skull.—The occipitofrontal circumference is almost always diminished, the average diminution being 1.3 inches, and practically the same in both boys and girls. It varied from nil

to 2.25 inches, which was the maximum. My youngest patients were two, aged two months with circumferences of 14 inches and 15 inches respectively. This compares fairly with the normal birth circumference, viz., 14 inches.

Brachycephaly—a shortening of the normal anteroposterior diameter—is always present in typical cases. I was unable to find in any language statistics showing the normal measurements of this and the transverse diameters of the cranium in children. The average length of the anteroposterior diameter in seven mongols all aged about two and a half years is $5\frac{11}{14}$ inches; in fifty healthy children $6\frac{1}{2}$ inches; difference $\frac{4}{7}$ inch. The Mongolian transverse diameter averages 5 inches, the normal is $5\frac{1}{4}$ inches. In all except one case the occiput was flattened and steep, but no actual depression such as Sutherland⁴ mentions was ever present.

The Fontanels remain open late, the latest in my series was four years, but one has been reported open at four years and nine months.⁷ From my cases the average date of union is about $2\frac{1}{2}$ years of age. The posterior fontanel was often open at the fourth, fifth and even the tenth months. The union of the lambdoidal, coronal, and sagittal sutures was also delayed.

The Face is flat and often depressed as a whole. The lower part of the forehead is then less prominent and on a plane posterior to that of the upper. The complexion is, as a general rule, good, except in the early weeks of life, or when the child is of the thick skinned strumous type. The other common facial peculiarities have already been described in ARCHIVES OF PEDIATRICS.

The Eyes.—Strabismus, always convergent and concomitant, occurred in 7 cases. Nystagmus was present five times. Sutherland⁴ states that both these symptoms tend to disappear after the first six months, which does not agree with my experience. In 3 cases strabismus appeared in infancy and persisted, and in 2 others it appeared first at eighteen and twenty-six months. In only one case of squint or nystagmus dating from birth did it pass off later. Ametropia is common. I found no noteworthy fundal changes even where there was nystagmus. Ophthalmia tarsi has been described as almost universal, but was seen in only 2 cases. When present it was in older children with marked tuberculous history. Epicanthus occurred seven times, and these children were much more Mongolian looking than those without it. Actual measurements of all cases seemed to show that there is very little increase in the distance between the eyes, although the broad

nasal bridge, and epicanthus, when present, give this appearance. Dr. John Thomson⁶ remarks that the eyes are often rather near one another, but I have not met with such a case.

Another question that is worth considering is whether the causes of the obliquity of the eyes in mongolism and in the Mongolians are identical in both? Komoto states that the difference between the Mongolian and Caucasian eye rests solely on the epicanthus which exists physiologically among the Chinese and Japanese. In mongolism, however, the obliquity of the palpebral fissure is present even where there is no epicanthus, and is due to skeletal peculiarities. If Komoto is correct, the causes are different. (Quoted *Jour. Amer. Med. Assoc.*, Vol. XVIII., 1892, p. 361).

The Mouth was usually kept open, and in low and medium grade cases there was dribbling of saliva.

The Tongue was never much enlarged, and never more than slightly protruded. The peculiar and characteristic hypertrophy of the fungiform papillæ which is followed by fissuring of the surface of the tongue was always present after a certain age and was not seen in any other form of mental feebleness examined. The earliest age at which fissuring was present was twenty-two months. From notes of other cases, I find the following data:—In 8 under 12 months, no hypertrophy nor fissuring. In 2, aged 24 and 26 months, no hypertrophy nor fissuring. In 3, aged 24, 26 and 30 months, hypertrophy commencing, no fissures. In 1, aged 26.5 months, both were present. In 6, ranging from 2.5 to 11 years in age, both were present.

Palatal deformities were present in 65 per cent. of my cases. In seven the palate was high and narrow; in two, high; in one, high with a median ridge; in one, narrow but not high; in two, broad and approaching the circular type; in four, it was "fair," and in the remainder normal.

Rhinitis was common, and adenoids almost invariably present. The ears were often deficient in shape, but in no case were they set too far back.

The Teeth appear late and irregularly. In one case the lower incisors came at 10 months, in another the upper central incisors at 9 months, and these were the earliest I saw. The lower incisors appeared at from 16 to 26 months, the upper incisors at from 17 to 19 months, the right upper molars at from 14 to 18.5 months, and the left upper molar at from 14 to 23 months. One child, of

26 months, had only four teeth, two, of 22 and 30 months, had six. The lower central incisors in one-half of the cases appear first. In many the upper anterior molars come first, or the upper central incisors. The second dentition is also delayed, so that the six-year-old molars may appear two years later. The teeth decay early, and at twenty-six months may all be bad. In other cases they remain perfectly good.

The Hair may be of any color, but is more often light than dark. In infancy it is usually soft and in most cases abundant, but in some cases it is long, fine, dry and standing straight up from the head. In only 5 out of 18 cases could it be fairly described as scanty.

Skin.—Except in one case the skin was soft, and only furfuraceous on the cheeks.

PHYSICAL DEVELOPMENT.—In 55 per cent. these children were weak from birth, my own experience confirming Sir A. Mitchell's¹¹ in this respect. The stature was on an average $3\frac{1}{2}$ inches less than normal. The decrease was less in boys than girls, as 23: 25. In 4 cases the mongols were .4 to .5 inch above the average height for their ages. The average diminution in weight was six pounds, nine ounces.

A passage in Ireland's⁹ book suggested to me to make comparative measurements of the lengths of the upper and forearms. In 1 case they were equal, in another the difference was three eighths of an inch, but in the others no alteration was ascertainable. In the fetal condition up to the fiftieth day and in apes the forearm is longer than the upper arm, in man the reverse is true.

The Thumb and little fingers are relatively very short, and the second, third and fourth fingers often about the same length. The tips are tapering, not square. The peculiar outward curving of the little finger, described by Telford Smith¹² in ARCHIVES OF PEDIATRICS in 1896, as being almost distinctive, was present only twelve times, and I found it in microcephaly, cretinism and healthy children. In 9 it was quite well marked, in 3 it was slight and could easily have been overlooked, and in 13 it was entirely absent. Since this was written J. P. West³² in America has arrived at the same conclusion.

The laxity of the ligaments was in some cases very marked. One child could easily do the stage trick known as the "splits," and another used to hold its leg upright against the chest and face like a doll. Congenital morbus ceruleus occurred five times,

and in one case showed considerable improvement later on. Constipation was complained of in 28 per cent. of cases; mucous disease (of Eustace Smith) in two, and diarrhea in others.

Mental Condition.—In 14 cases the cerebral and mental condition was one of idiocy of a low grade; in four of medium, and in seven of a high grade. Fifty-five per cent. gave some sort of warning, usually a grunt or other sign before defecation, less frequently before micturition. This was present as early as the tenth month, but in another no warning was given at two and one quarter years.

Speech came late. Five children between the ages of twenty-six months and four years could not speak at all. One at twenty-six months could only say "Dada," and two at eighteen and twenty-four months could call the cat by name. The development of speech is in the same order as in healthy children; first "mama," "tata," "papa," then the names of persons, then the names of things, and next a few verbs. My most accomplished mongol got no further than this. No abnormal conditions of moment were found in the sensory or motor functions. The extensor reflex of the foot which disappears usually about the end of the first year persisted somewhat longer. The pyramids therefore probably develop late.

The Temperature of the body is often subnormal ranging from 96.0° to 97.3° F.

Symptoms of Degeneration.—Almost every conceivable malformation and stigma of degeneration are found among mongols. In addition to those mentioned I saw harelip, contraction of the palmar fascia, webbing of the toes (2 cases), supernumerary toes, umbilical hernia, naevi (thrice), cryptorchidism, phimosis, etc. The literature contains mention of others such as spina bifida occulta, congenital club-foot, imperforate anus,⁴ etc.

DIAGNOSIS.—These children are usually brought by the parents for intestinal disturbance, nystagmus, inability to hold the head up, or "weakness of the back." Clinically the diagnosis is usually easy and always so in a well marked case. Some normal children have a facies something like that of mongolism. Syphilis may occasionally cause difficulty. Cretinism, however, is usually the source of error. In mongolism we find tapering fingers, the little finger sometimes curved, brachycephaly, obliquely set eyes, pink cheeks, sometimes epicanthus, sometimes congenital heart disease, thyroid gland normal, no local deposits of

fat, peculiar appearances on the tongue, stature below normal but the body well formed, and the symptoms present from birth. In cretinism we find on the other hand, the finger tips square, the little finger rarely curved, nothing special about the shape of the skull, the eyes not oblique, coarse features, epicanthus absent, congenital heart disease very rare, thyroid gland not palpable, edema of whole body, fat deposits frequent, large protruding tongue, bodily deformities frequent, and the symptoms do not appear until the sixth month (Thomson).⁶ Cretins are more lethargic, and are benefited by the thyroid treatment. Mongols are not so.

THE PROGNOSIS varies but is usually bad with respect to the mental condition. Some of my higher grade cases could feed themselves. A mongol may not hold up his head until two and a half years, may not sit up until twelve to twenty-eight months, may not walk until three and one half years or later, and may not feed himself until four or five years; in bad cases not even then.

My best educated mongol knew his name, and could spell "Monday," and also knew the year and month. He could spell or read no other words, and what he did say was spoken in a parrot-like way. He knew some of the letters and all the figures. Even this one was refused admission to the special classes of the London School Board for Backward Children.

The prognosis as to life is still worse. The parents often told me these children bore the winter badly. One of my cases died of congenital heart disease; one of bronchopneumonia, and one of tubercular meningitis. Most die of pulmonary tuberculosis. Neumann²³ mentions that of his 13 cases, only 6 are now living.

I have not yet had the good fortune to make a postmortem examination of a mongol, but have been able to collect the results of eleven cases.^{10 4 7 5} All are agreed that there is an anteroposterior shortening at the base of the skull, but nothing else (up to February, 1902) has been discovered of importance. A summary of these examinations shows that there is no evidence in favor of the premature primary ossification of the os tri-basillare, but that there is an arrested development of structures at the base of the brain followed by premature osseous union. The autopsy work done by Wilmarth⁵ in America on 5 cases points to the latter theory as well as that of other observers in London.

I never found in life any backward extension of the vomer

into the nasopharynx such as was found postmortem in 1 case by Still.⁷

TREATMENT has availed nothing in my hands. The general condition sometimes improves under malt and oil, but thyroid treatment was useless. Carl Looft²² found thymus gland treatment was of no benefit.

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A CASE OF AUTOINTOXICATION WITH NEUTRAL MAGNESIUM PHOSPHATE IN THE URINE.*

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The following is the history of an interesting case of auto-intoxication: Anna J., aged ten years; a highly intellectual, sensitive child, of cultured parents. A gouty paternal history. The mother is a cultured woman of nervous temperament, who has given the most careful attention to the hygiene of her children. Notwithstanding this care, the patient during her whole childhood has been subject to attacks of acute autointoxication, rarely traceable to a definite cause. Constipation, coated tongue, nausea, vomiting, headache, dizziness and prostration have been the usual phenomena of these attacks. For the last two or three years they have been less frequent and have been made less severe or have been aborted by free elimination and abstinence from food for two or three days from the onset of premonitory symptoms. Three years ago, after one of these attacks, a persistent mild febrile movement and cough, with the physical signs of condensed lung tissue in the lower part of the upper right lobe in front, led me to advise her spending the remainder of the winter in Colorado Springs. Since that time her temperature has been quite uniformly one-half to one degree above normal in the morning and from one to one degree and a half above in the evening.

The attack reported below came after a winter of unusual freedom from digestive disturbance. It was preceded for two weeks by languor, coated tongue, indifferent appetite and indigestion.

On January 28th the bowels were freely purged with calomel. The following night she vomited. During the next morning, January 29th, she felt well, but was languid. At 2 P.M. she lapsed suddenly into a state of persistent somnolence simulating coma. She lay apparently sleeping. She could be aroused but with difficulty, and then she would scarcely open her eyes, move or speak. When fully aroused she was nauseated, dizzy and exquisitely sensitive to light, sound and movement. She vomited every few

* Read before the American Pediatric Society, Boston, May 26, 27, 28, 1902.

hours. Her pulse was 120; temperature 99.2° F., respiration quiet and shallow; pupils normal.

For the next four days there was no material change in her condition.

February 3d. For about an hour in the morning, and also in the afternoon, her extremities became cool and her pulse feeble. She was very restless and in great indefinable discomfort.

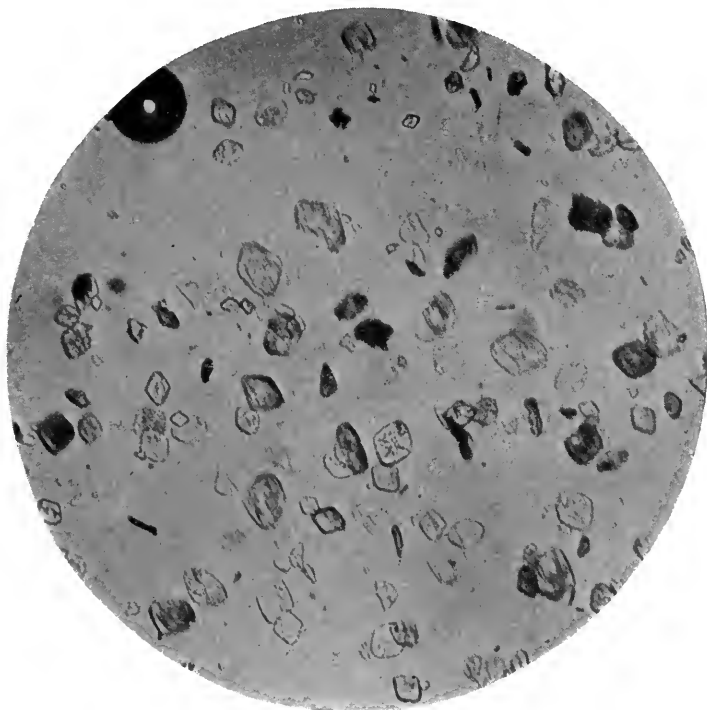


FIG. 1.—PHOTOMICROGRAPH OF SEDIMENT OF NEUTRAL MAGNESIUM PHOSPHATE IN URINE.

On February 4th she had a quiet night. A free evacuation of the bowels was followed by a decided improvement in the symptoms. The patient opened her eyes, spoke a few words and moved a little. The nausea and vertigo had gone. She showed returning appetite. The pulse was 100; temperature 98.6° F.

Convalescence progressed steadily from this time, although marked by decided nervous irritability and insomnia. She was able to sit up in bed February 10th, just two weeks from the onset

of the attack. During the last week of her stay in bed her temperature remained normal.

On February 1st, a twenty-four hour specimen of the urine was analyzed. Amount in twenty-four hours, 460 cc. Color, pale yellow, cloudy. Reaction, acid. Tests for albumin, sugar, bile and indican, negative. The sediment was abundant and heavy, and appeared to the naked eye as colorless, glistening crystals. The

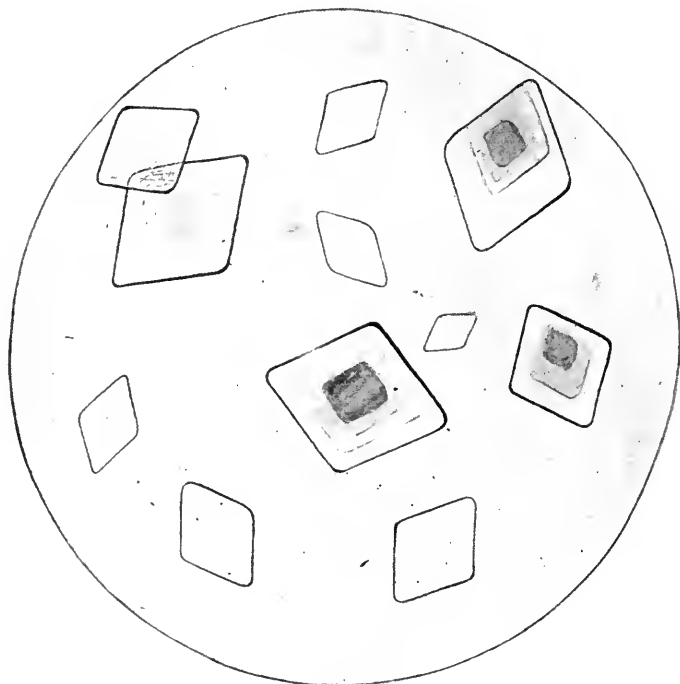


FIG. II.—DRAWINGS OF CRYSTALS OF NEUTRAL MAGNESIUM PHOSPHATE.

microscope showed the sediment to be made up entirely of highly refractive, colorless rhombic plates. Most of the crystals had irregular eroded edges, and showed on the flat surface striæ, as if they are built up of several thin plates. Neither myself nor the members of the Detroit Clinical Laboratory staff were able to identify the crystals by their morphology or by the usual microchemical tests. Chemical analysis by Dr. Stephenson, analytical chemist to the Laboratory, identified the sediment as neutral magnesium phosphate, $\text{Mg}_3(\text{PO}_4)_2$. A photomicrograph of the

sediment is shown in Fig. I. Fig. II. is a drawing of a few isolated characteristic crystals.

This urinary sediment is of very rare occurrence, and is not described in the usual text books on urinary analysis. It was first fully described by Stein (*Deutsches Archiv. f. Klin. Med. Bd. XVIII*). According to this author it is found in concentrated,

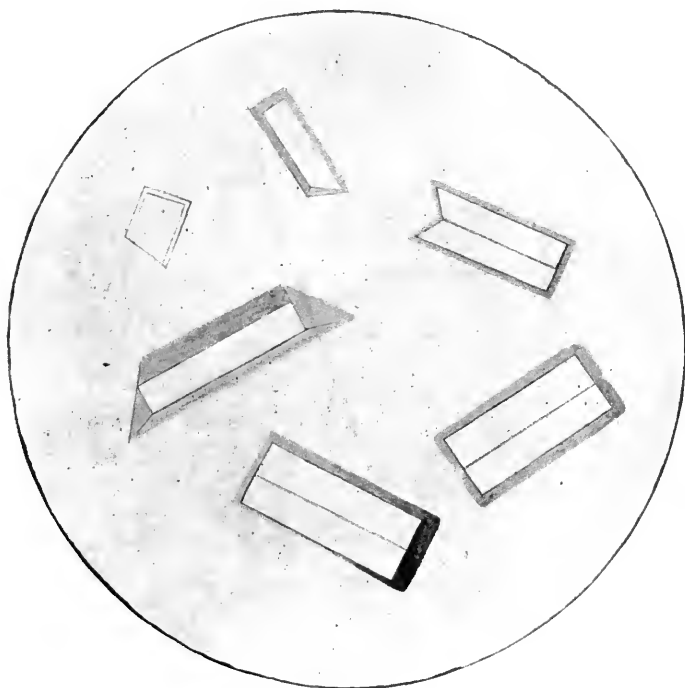


FIG. III.—CRYSTALS OF NEUTRAL MAGNESIUM PHOSPHATE, ACCORDING TO REIDER AND STEIN.

slightly acid or neutral urines in which the ammonia is not increased.

Herman Reider, in his "Atlas of Urinary Sediments," shows a plate of this deposit and states that it has been found in cases of dilatation of the stomach with pathological fermentation. He says, further, that Hassell and Golding Bird described these crystals twenty-three years before the publication of Stein's paper. The plates in Reider's atlas and in Stein's article show a different crystallization from that of my specimen when it was fresh. (Fig.

III). After standing over night in the ice-box of the laboratory, the form of crystalization changed and the morphology of the crystals was identical with that shown by Reider. The morphology of the original crystals is similar to that of certain colorless forms of uric acid (Fig. IV.), and the sediment was thought to be uric acid until it was subjected to microchemical tests.

This case is unusual and interesting both from the clinical his-

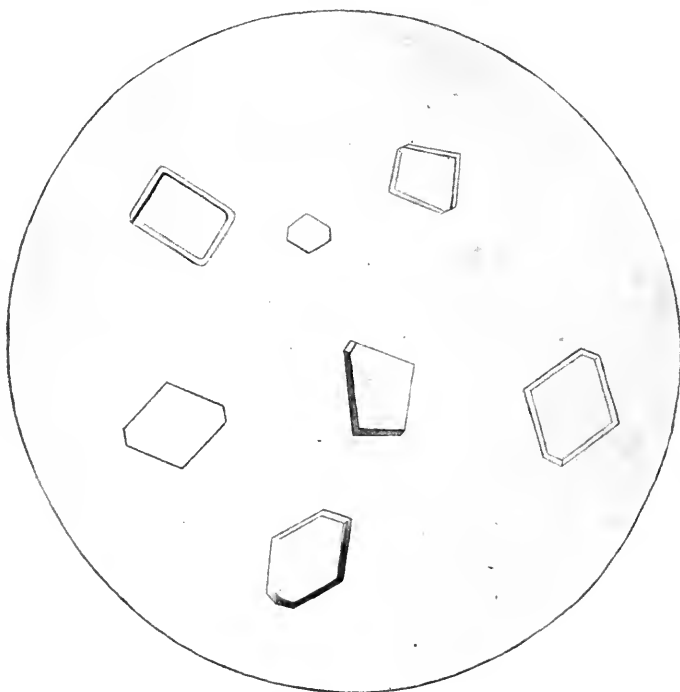


FIG. IV.—FORMS OF COLORLESS CRYSTALS OF URIC ACID.

tory and the urinary findings. But one other case presenting similar clinical phenomena has come under my observation. This child, age four years, the daughter of a prominent Detroit surgeon, remained in a similar somnolent state without speaking or rousing, with quick pulse and normal temperature for five days. After what her father described as a free bilious evacuation of the bowels, the somnolence lifted, the mind cleared and she quickly convalesced.

This type of autointoxication has to be differentiated from uremia and from meningitis or other organic cerebral disease.

The urinary findings would exclude uremia. The somnolence, vomiting, constipation and vertigo are strongly suggestive of meningitis. Absence of pyrexia, vaso-motor phenomena, severe headache, paralyses, slow irregular pulse and the state of the pupil and fundus of the eye, exclude organic brain mischief.

As to the significance of the magnesium phosphate in the urine, the few cases in which this sediment has been found have shown pathological intestinal fermentation and putrefaction. It should be noted, however, that in the case here reported magnesium sulphate was administered by enema several times during the course of the illness. This may possibly account for the presence of the magnesium salt in the urine.

DISCUSSION.

DR. EDSALL.—In cases of this kind, I believe it would be worth while to look for acetone and diacetic acid in the urine; because it has been established that an acid intoxication similar to that which occurs in diabetes mellitus is occasionally seen in other conditions and has repeatedly been met with in childhood. If acid intoxication were present, it would be very easy to discover it, and treatment of this acid intoxication might be of great value in obscure cases of this kind. I have recently reported a case of nondiabetic acid intoxication in an adult, in which there was a desperate, prolonged attack of coma. This man recovered entirely after the intravenous use of alkali.

DR. CHRISTOPHER.—I would like to add that personally I find high acidity of the urine often associated with autointoxication in children and that the trouble clears up under simple alkalization of the urine, preferably with potash. I am not speaking particularly of cases of coma, but have had meningitis disappear in the same way.

DR. EDSALL.—In one case of recurrent vomiting which I saw but once, I noticed a pronounced odor of acetone at the beginning of the attack. I could not get a specimen of the urine, but ordered large doses of alkali, and the vomiting stopped at once. Since that time, alkali has at once been used in large amount when suggestive symptoms have appeared. Since that time—eighteen months ago—this child has been entirely free from attacks; while during the previous three years she had been having them very frequently.

DR. CHRISTOPHER.—I find that often in psychic vomiting they will take the bicarbonate of soda when they will not retain anything else. I had one child who took by mistake two ounces of dry bicarbonate of soda and in the morning the urine was still acid in reaction.

CLINICAL OBSERVATIONS ON CIRCULATORY FAILURE IN ACUTE INFECTIOUS DISEASE.*

BY AUGUSTUS CAILLÉ, M.D.,

New York.

This is merely a preliminary report dealing with circulatory failure from (1) direct loss of blood; (2) shock; (3) loss of blood and sepsis combined (in surgical cases); (4) sepsis in acute infectious disease, based upon experiment and hospital experience.

From our knowledge of the effects of *saline infusion* in shock and hemorrhage it would appear that this procedure and also *hypodermoclysis*, may be relied upon to promptly and safely stimulate in circulatory failure. Infusion has an immediate effect; hypodermoclysis improves the circulation in from 5 to 10 minutes as shown by the quality of the pulse and the slowing of respiration. The action of both is more prompt than that of drugs and apparently increases the effect of drugs given hypodermatically. It is safe to continue with the saline until the pulse is of good quality and then to stop it.

From a study of the *septic* cases treated by saline infusion it would appear that in order to remain on safe ground it should be reserved for septic cases in which there has been a decided loss of body fluids, as in severe choleraic or typhoid diarrhea. In cases of *sepsis without loss of body fluids* and with an imperceptible pulse and rapid respiration and in conjunction with a very rapid thumping of an undilated heart, saline infusion or hypodermoclysis may be warranted, but under no circumstance should such methods be employed in a routine way or when the heart's action is hampered by pericardial effusion. Seven of the 8 septic cases, the basis of this report, were looked upon as hopeless—the ultimate recovery of 4 out of 8 was in every way satisfactory considering the gravity of the condition.

Enteroclysis properly carried out with Kemp's flexible double current catheter (15 minutes flow of water at 110° F.) appears to be an absolutely safe method of combating circulatory failure in septic conditions.

It stimulates kidney secretion and thereby promotes the elimin-

* Read before the American Pediatric Society, Boston, May 26, 27, 28, 1902.

ation of poisons. It induces intestinal absorption of water whenever the body craves for water. It has a certain effect in reducing temperature. It appears to be indicated as a routine treatment in all septic conditions even if the kidneys be not involved.

In severe anemia I have found that enteroclysis is followed by an actual improvement of the blood mixture independent of the administration of drugs as shown by a number of cases under prolonged observation. In conclusion I would emphasize that circulatory failure is not always heart failure and that this distinction should receive more attention at the bedside and that enteroclysis properly carried out should be universally adopted in the practice of medicine as a therapeutic measure of undoubted value in the many cases in which increased elimination through the kidneys is desired, as in all forms of infective disease and in faulty metabolism generally. Enteroclysis may be administered alone instead of drugs or in combination with drugs.

DISCUSSION.

DR. ACKER.—I have never had a case of typhoid in a child in which I have used this treatment, but I had a moribund case in an adult where the man had had a large hemorrhage at night and was in a moribund condition the following day so that the pulse could not be felt at the wrist. Nearly a quart of saline solution was injected into the vein with immediate effect. The pulse improved, the respiration became deep and free, and there was an uninterrupted recovery.

DR. BLACKADER.—At what temperature do you use the fluid and was there any alteration in the position of the patient?

DR. CAILLÉ.—A temperature of 110 or 120 F. The buttocks are raised and Kemp's flexible tube introduced without force.

DR. BLACKADER.—In what way do you think it acts as a stimulant to the circulation?

DR. CAILLÉ.—The abdominal sympathetic is probably stimulated to some extent, and then it seems to me that if the tissues crave water it is supplied by absorption.

DR. BLACKADER.—I think that we are still uncertain as to the exact conditions under which such means will be of service, and will not merely add to the burden of an already much enfeebled heart. We know that where intravascular pressure is much lowered, cardiac action, *ipse facto*, is weakened, and it may be that in cases where the intravascular tension is extremely low, we do increase cardiac action very distinctly by all means which

increase vascular tone. This probably is the mode of action of hypodermoclysis in those cases where there has been a considerable drain of fluid from the system. In other cases the increased amount of fluid in the vessels stimulates the elimination of toxic material and lessens any depressing action arising in this way. In still others it may mean only an increased amount of fluid for the heart to drive and, therefore, I am not surprised to learn that in some cases this measure appeared distinctly injurious. The subject of circulatory failure in infectious diseases is one requiring much thought and a careful determination of the conditions present before uncertain measures are undertaken.

DR. KERLEY.—I can fully endorse what Dr. Caillé has said regarding colon flushings. I have used this treatment extensively and it seems to me that there is no danger of the fluid being taken up by the system unless it needs it. My method is to use a long rectal tube attached to a fountain syringe and introduce it until it can be felt in the descending colon when the water is allowed to flow, the bag being held about three feet higher than the child's body. The child should retain the water as long as possible. This will be best accomplished by maintaining the child in the recumbent position, with the shoulders lower than the buttocks. I have used the colon flushing with particularly good results in summer diarrhea in cases in which there had been large loss of fluid through the profuse watery discharges. A normal salt solution is always best. I have often given a pint or a quart and then measured the amount passed, and have frequently found that as much as $\frac{1}{2}$ pint has been retained. During the past winter I used it in three acute septic cases in which it proved signally beneficial, from three to four of the colon flushings were given daily, about one-half of the fluid being retained and absorbed into the circulation. I have not used the solution as hot as Dr. Caillé recommends excepting in the cases in which there were great prostration and low temperature. In the diarrheal cases in which there was high fever I have used it as low as 70 degrees, with the idea of aiding in the reduction of the temperature. In the septic cases it was usually used at the body temperature. It has also been of service in the acute infectious diseases in which there was diminished renal secretion. In acute nephritis or in post scarlatinal nephritis it is of much service in starting up the kidney function. To my mind it does better execution as a diuretic than any other single measure we have at our command.

DR. SEIBERT.—I simply want to say that as some of you may know, during the last fourteen years I have made use of systematic enteroclysis in the treatment of typhoid fever patients. In severe cases with very high fever I give an enema every six hours, in adults, using a quart and a half, but never with the catheter, because of the danger of coming in contact with typhoid

ulcers in the rectum. In mild cases enemata are given twice daily, simply elevating the buttocks. If some of the water is retained it is all the better for the patient. I have published on this subject as long as twelve years ago. As regards its use in the gastro-enteritic cases of children I endorse what Dr. Caillé has said.

DR. JACOBI.—One factor in these cases is the filling of the blood vessels with a circulating fluid when it is wanted. When that is so, the saline solution will do at almost any temperature, that of the blood or a little less. Dr. Caillé has told us that he has used injections of 110-120° F. At that temperature it acts as a stimulant. He has spoken of the stimulation of the splanchnic nerve; shock means paralysis of the splanchnic and that means accumulation of blood in the vessels of the abdominal cavity to such an extent as to leave the rest of the body anemic. By stimulating the splanchnic nerve with this heat you supply the body with blood again and you have the fluid you inject and this blood that has been stored away added to the circulating medium, and, I think, that explains in part the rapid effect produced.

DR. COTTON.—When listening to Dr. DaCosta I remember he made an emphatic point, clinically, of enteroclysis in colitis. Asafetida, turpentine and guaiacum were added to the enema. I followed his advice eighteen years ago and met with such success in cases of exhaustion from this cause that perhaps I gave too much credit to the drugs used, until within the past six or seven years the normal salt solution has taken the place of the drugs. Still I must admit that I believe that these drugs will help to accomplish what Dr. Jacobi has attributed to the heat.

DR. ACKER.—There are two men in Washington who have done much work in this direction, Drs. Bovee and Stone. Dr. Bovee has devised a thermometer for recording the temperature of the water as it enters the bowel and he found that there is always a loss of 10 or 15°. Dr. Stone has done some interesting work, too, along this line, using intravenous injections.

DR. ADAMS.—The loss of heat would depend upon the length of tube used and the rapidity with which it passed through. It certainly should not lose 10 degrees.

DR. ACKER.—If it is desired to use water of 110° Dr. Bovee begins with a temperature of 120° in the bag, allowing for a loss of 10°.

SUDDEN DEATH OF AN INFANT SIX MONTHS OLD
DUE TO COMPRESSION OF LARGE BLOOD
VESSELS BY AN ENLARGED THYMUS
GLAND.*

BY AUGUSTUS CAILLÉ, M.D.,
New York.

Intra vitam the infant was occasionally slightly cyanotic and had spells of rapid and laborious breathing. On two occasions it had convulsive seizures. Auscultation revealed a loud systolic murmur at the base of heart with the valve sounds clear and distinct. The murmur was not transmitted in any direction. The infant died suddenly and the autopsy showed, as was suspected, a large thymus gland measuring two inches in length and one inch across. The lower pole of the gland compressed the large vessels in such a way as to cut off the circulation.

DISCUSSION.

DR. JACOBI.—Here was a child that showed no other symptoms, no heart disease, and who died suddenly with symptoms of cyanosis. Nothing else was found but a large thymus gland, an unusually large thymus. There are undoubted cases in which babies die this way. I had a paper on this subject in the third volume of the Transactions of the Association of American Physicians. The slightest increase in such a thymus gland would certainly cut off respiration. An impediment to respiration caused by such a large gland would be perhaps endured for a time and then it gets so large that it takes but the slightest increase to kill the baby at once. The distance between the manubrium sterni and the vertebral column is little more than 2 cm.: the space which is filled by esophagus, trachea, blood vessels, nerves, connective tissue, etc., becomes very narrow and congestion of a few seconds will so further narrow it that suffocation is possible. That is what I believe takes place in these cases, not to speak of the possible influence on the recurrent and other nerves.

DR. CAILLÉ.—It was clear to us that the thymus gland pressed upon the large vessels from the heart and that there was complete stoppage.

DR. JACOBI.—These cases need not be called acute, but when we consider the narrowness of the space in which so many tissues

* Specimen shown at the meeting of the American Pediatric Society, Boston, May 26, 27, 28, 1902.

are found it is quite probable that a very trifling addition to the amount of blood in the thymus itself will so narrow the space that circulation is impeded. Only a very few cases have been reported since Kopp reported his first case, nearly a hundred years ago, of thymic asthma.

DR. PUTNAM.—A case of death occurred under such circumstances at our asylum in Boston a few months ago. The child was in its crib and no one looking at it at the time. The nurses supposed that it had turned on its face and suffocated. We had an autopsy and nothing was found but a large thymus gland which weighed six ounces.

DR. JACOB. — There is a case on record by Koenig in which symptoms of suffocation existed, the diagnosis of enlarged thymus was made and part of the thymus removed, with life saving effect. The thymus was drawn out and fastened in front, away from the blood vessels and larynx, by Rehn and by Koenig, and the infant got well. That would seem to me to be absolute proof of the cause, as removing the gland from the neighborhood gave relief. I referred to the cases in my last edition of *Therapeutics*. The diagnosis is not so difficult in most cases. It is quite possible by percussing the body in different positions. When the body is on the back very little of the gland can be percussed. Sometimes, however, the manubrium sterni gives marked dullness and in an erect position the dullness will increase considerably. If you percuss from below, the child being supported face downward, the gland is easily percussed over a large surface, and, one like this I am sure could easily have been percussed in that position. I raise the babies in that way and have seldom failed to make a diagnosis. The same thing has been published in the last year by some observer in Germany, who speaks of the possibility of thus diagnosing an enlarged thymus. In my first case of the kind I was called to a baby who had just died. Nothing was to be done, but the baby was still warm, and I percussed the chest and it appeared to me that there was some dullness and I suggested the possibility of enlarged thymus. I turned the baby over and then I got a large extent of dullness and fullness in that neighborhood. Since then I have frequently done the same thing.

Bacteriologic Research in Six New Cases of Noma.—

A. Trambusti (*Il Policlinico*, September, 1902) concludes from these cases and from the experience of Comba, Longa, and others, that the bacillus isolated by him and described in *Il Policlinico*, January, 1902, is not the specific cause of this disease, and that noma is not to be regarded as a specific malady but as a form of gangrene which may be determined by a variety of microorganisms in association with the species commonly found in the body cavities communicating with the exterior.—*American Medicine*.

AMYGDALITIS FOLLOWED BY APPENDICITIS, NEPHRITIS AND ENDOCARDITIS.

BY E. W. MITCHELL, M.D.,

Professor of Pediatrics, Miami Medical College, Cincinnati, O.

The case here reported has already been referred to by Dr. Fred Forchheimer in a very suggestive paper, "Some Remote Diseases Arising from Tonsillar Infection," read before the American Pediatric Society and published in ARCHIVES OF PEDIATRICS, September, 1902 (page 661.) Several interesting and instructive features justify the narration of this case in fuller detail. The patient was a delicate girl of eleven years who had had two very mild attacks of "catarrhal" appendicitis in the year preceding the attack referred to by Dr. Forchheimer. In those first attacks no relationship to sore throat had been observed but in the last the parents recall that she had complained of sore throat a few days previous. At the time of onset the tonsils were still swollen and reddened. At the age of six, pharyngeal adenoids and portions of the tonsils were removed, but she has continued to have frequent attacks of tonsillitis.

The attack of appendicitis began on the night of May 2, 1902, with severe intestinal colic. Small doses of chlorodyne and hot fomentations gave partial relief. On the morning of the 3d she was found suffering severely; there was marked tenderness at McBurney's point; she had vomited; the bowels had moved fairly well after an enema; the temperature was 100° F., the pulse 90. Dr. Ransohoff saw her in consultation in the afternoon and arrangements were made for immediate operation should the symptoms grow worse. The evening temperature was 100° F., pulse 98. On the morning of the 4th the temperature and pulse were both somewhat reduced and the pain had almost completely subsided. There was tenderness and rigidity in the right inguinal region. The general condition was so good that operation was deferred. About noon the pain recurred with great severity. The temperature rose rapidly to 102° F., the pulse to 115. She was immediately moved to the Jewish Hospital and an appendectomy was performed by Dr. Ransohoff, about forty hours from the onset of the attack. The anesthetic employed was chloroform. The time of the operation was about half an hour. The appendix

was found distended with pus, its distal extremity thinned almost to the point of rupture. The bacteriologist to the hospital, Dr. Hiller, reported the presence of the staphylococcus albus in the pus.

The patient reacted well from the operation and the first twenty-four hours were uneventful. During the second twenty-four hours great restlessness and sleeplessness developed. The temperature ranged from 99° F. to 100.5° F., the pulse from 100 to 120. Forty-eight hours after the operation the bowels were moved by calomel and an enema. During the first day about twenty-five ounces of urine had been obtained; during the second twenty ounces were passed. This was high colored, its specific gravity was 1020; it contained albumin in moderate amount, but no blood cells or casts. On the third day the albumin was much increased and blood cells and casts were present in large numbers. Unfortunately in the confusion attendant upon the removal to the hospital and the hasty operation no urinalysis was made immediately before operation.

The restlessness increased until convulsions seemed imminent. Several high enemata of normal salt solution were given during the third day; bromid and chloral were administered to secure rest. Dr. Forchheimer saw her in consultation on the afternoon of the third day and it was decided to give steam baths and sufficient morphia to secure some sleep and avert convulsions. In the evening the conditions were not improved. The rest secured by morphia was of short duration and the quantity of urine was still further diminished. The pulse was weak and rapid, the temperature 100° F.; the abdominal wound was doing well. A second movement of the bowels had been secured by salines. Hot packs were administered and $\frac{1}{8}$ grain of pilocarpin given hypodermically every four hours. Also a hypodermoclysis of normal salt solution, 1½ pint, was administered at 7 P.M. These measures failed to produce any improvement. Very little sweating was induced. As the night progressed she became comatose. The pulse was rapid (120 to 130) and irregular. The respiration became shallow and irregular. The area of cardiac dullness was increased and the apex beat displaced one quarter of an inch to the left of the nipple line. At 4 A.M. the consultants met and decided to make an infusion of normal salt solution after bleeding. The median basilic vein was opened by Dr. Ransohoff. Only about two ounces of blood were obtained as the bleeding was not free.

Eight ounces of normal salt solution were then injected. It was interesting to watch the effect of the transfusion, and all of those present were convinced that it turned the scale for recovery. The soft, feeble pulse became full and tense, its rate immediately fell to 90. An intermittance of the pulse was the signal for the immediate stopping of the injection. The respiration was improved. Within a few hours 120 cc. of urine were passed. Consciousness gradually returned. The transfusion was followed by the administration of spartein sulphate, one-half grain every three hours, and a high rectal enema of normal salt solution every six hours.

With the improved action of the heart a systolic *bruit* which previously had been faintly audible became quite distinct. For two days a friction rub was also heard. The nephritis improved quite rapidly, the endocarditis more slowly. At the end of two weeks the general improvement was interrupted by the appearance of pyelitis. There was pain in the loins, the characteristic mucopurulent cloud, dysuria, increased frequency of micturition and elevation of temperature (101° - 103°). The pyelitis was treated by a milk diet, mineral waters, urotropin and methylene blue. The methylene blue was found to give the most marked results.

On May 24th she was discharged from the hospital, with only a trace of albumin in the urine; the area of cardiac dullness was reduced almost to normal, a faint *bruit* was still audible and the urine still showed a heavy mucopurulent cloud. The improvement at home was uninterrupted. Final recovery was complete.

The rapid sequence of nephritis, endocarditis and pyelitis all plainly of septic origin, could hardly be otherwise explained than by a generalized infection. Whether this general infection was from absorption from the appendix, or whether the infections of the appendix and of the blood were both from some common source such as the tonsils are questions which, it seems to me, we are not, in the present state of knowledge, able to answer positively. In this case the probabilities are many in favor of the latter view. More light on this subject is greatly to be desired, and this case is reported as having some bearing upon the question from the clinical side.

A KEY TO THE HOME MODIFICATION OF BOTTLED MILK.

BY J. F. CONNORS, M.D.,
New York.

It is well known that bottled milk is better for use in infant feeding than milk dipped from cans. Secondary contamination is less probable, and if the milk was bottled some time before delivery, the cream will have risen when it reaches the family. In the older methods of home modification, cream was removed, mixed with whole milk, and then diluted. In the newer methods all the cream and certain quantities of the milk remaining in the bottle are removed and mixed and then diluted. It is thus possible to obtain from a quart bottle of milk after the cream has risen about twenty-five different mixtures of cream and milk. This has been clearly brought out by Chapin, Crandall, Holt and others. This method serves the purpose of specialists admirably. For those not so familiar with the subject it seems that a key is needed that will enable them to tell at a glance how to make up any mixture and how to shift percentages without calculations. The key here offered is based on the following well established facts.

Skimmed milk is quite free of fat.

The top 20 ounces are $1\frac{1}{2}$ times as rich in fat as the original milk.

"	15	"	2	"	"	"
"	11	"	$2\frac{1}{2}$	"	"	"
"	9	"	3	"	"	"
"	8	"	$3\frac{1}{2}$	"	"	"
"	7	"	4	"	"	"

The proteids and sugar are about the same in all of these milks.

The actual richness of any milk or top milk can only be determined by assay; but by taking advantage of these facts the amount of fat and proteid in a mixture can be increased or decreased in definite proportions by diluting different top milks.

To remove these top milks a Chapin dipper, shown in the illustration,* is to be preferred, as the flat bottom enables it to stand alone when the first dipperful is removed with a teaspoon, which usually calls for the use of both hands. The cream is not thereby disturbed. The illustration which accompanies the dipper makes it plain to the mother or nurse how much is to be removed from the bottle and what is meant by different top milks. (See cut.)

To find composition of any dilution of skimmed, whole or top

TABLE SHOWS

1st. Extreme range of composition of whole milk and top milks.

2d. Extreme range of composition of different dilutions of whole and top milks.

Milk containing 3% of fat is the poorest allowed by law in all but one state of the Union. Milk containing 5% of fat is rich Jersey milk. Practically all milk will fall between these extremes. Most bottled milk will contain a little less than 4% fat, 3.5% proteids and 5% sugar, or about the mean of these extremes, so in making up feedings it is better to use the mean and not the extremes for whole and diluted milks and top milks, unless the milk is known to be either poor or very rich.

Dilution or Proportion of Milk in Feeding Mixture.		% FAT.										% PROTEIDS.		% SUGAR.	
		SKIMMED MILK.		POOR MILK.		WHOLE MILK.		POOR MILK.		RICH MILK.		POOR MILK.		RICH MILK.	
Milk in Feeding Mixture.	Dilution or Proportion of	0.50-1.00	3.00-5.00	4.50	6.00-7.50	7.50-10.00	10.00-12.50	12.50-15.00	15.00-17.50	17.50-20.00	20.00-22.50	22.50-25.00	25.00-27.50	27.50-30.00	30.00-32.50
		0.06-1.12	.38-.63	.56-.94	.75-1.25	.94-1.60	1.07-1.80	1.12-1.90	1.30-2.20	1.50-2.50	1.70-2.85	1.80-3.00	2.00-3.34	2.20-3.50	2.40-4.00
		.07-.14	.43-.70	.64-1.07	.86-1.43	1.07-1.80	1.25-2.10	1.30-2.10	1.50-2.50	1.75-2.90	2.00-3.34	2.20-3.50	2.40-4.00	2.60-4.20	2.80-4.50
		.08-16	.50-.83	.75-1.25	1.00-1.67	1.25-2.10	1.50-2.50	1.50-2.50	1.75-2.90	2.00-3.34	2.20-3.50	2.40-4.00	2.60-4.20	2.80-4.50	3.00-5.00
		.10-20	.60-1.00	.90-1.50	1.20-2.00	1.50-2.50	1.80-3.00	1.80-3.00	2.00-3.34	2.20-3.50	2.40-4.00	2.60-4.20	2.80-4.50	3.00-5.00	3.20-5.50
		.12-25	.75-1.25	1.12-1.90	1.50-2.50	1.88-3.12	2.25-3.75	2.25-3.75	2.62-4.38	3.00-5.00	3.40-5.66	3.80-6.00	4.20-7.00	4.60-8.00	5.00-10.00
		.16-33	1.00-1.67	1.50-2.50	2.00-3.33	2.50-4.17	3.00-5.00	3.00-5.00	3.50-5.82	4.00-6.66	4.60-7.66	5.20-8.66	5.80-10.00	6.40-11.00	7.00-12.50
		.20-40	1.20-2.00	1.80-3.00	2.40-4.00	3.00-5.00	3.60-6.00	3.60-6.00	4.20-7.00	4.80-8.00	5.40-9.00	6.00-10.00	6.60-11.00	7.20-12.50	7.80-15.00
		.25-50	1.50-2.50	2.25-3.75	3.00-5.00	3.75-6.25	4.50-7.50	4.50-7.50	5.25-8.75	6.00-10.00	6.75-12.50	7.50-15.00	8.25-17.50	9.00-20.00	9.75-25.00
		.30-60	1.90-3.10	2.80-4.70	3.80-6.30	4.70-7.80	5.60-9.40	5.60-9.40	6.50-10.94	7.50-12.50	8.50-15.00	9.50-17.50	10.50-20.00	11.50-25.00	12.50-30.00
		.33-66	2.00-3.30	3.00-5.00	4.00-6.60	5.00-8.33	6.00-10.00	6.00-10.00	7.00-11.70	8.00-13.50	9.00-15.00	10.00-17.50	11.00-20.00	12.00-25.00	13.00-30.00
		.37-75	2.25-3.75	3.40-5.60	4.50-7.50	5.62-9.40	6.75-11.25	6.75-11.25	7.90-13.13	9.00-15.00	10.10-17.50	11.20-20.00	12.30-25.00	13.40-30.00	14.50-35.00

milk, look in the first column of the table for that dilution of milk; opposite this dilution will be found the percentages of fat, proteids and sugar in their respective columns. To make up a mixture of any desired composition, look in the proteid column for the desired percentage, then move in a horizontal line to the left, until the desired percentage of fat is reached. The heading of the fat column will show what milk must be used, and the first column

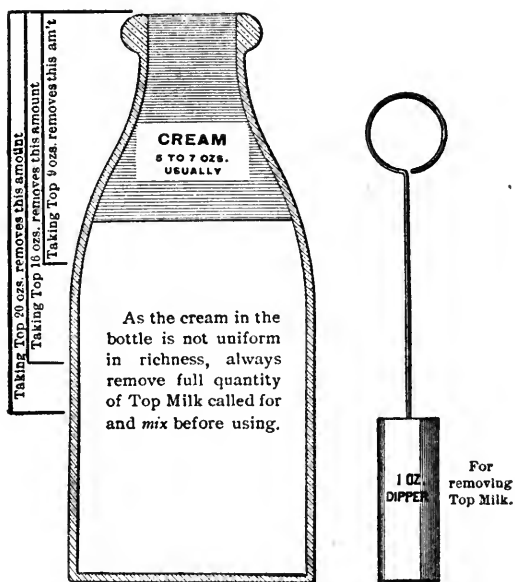


ILLUSTRATION OF THE METHOD OF OBTAINING TOP MILK FROM THE ORDINARY BOTTLE.*

the dilution, or what proportion of the mixture this milk must be. Look in the sugar column for the percentage of sugar in the diluted milk. From the desired percentage subtract the percentage in the diluted milk. The difference must be added to the feeding mixture, using the nearest whole number instead of fractions in the calculation.

One part sugar to 20 parts food adds 5 per cent.; one part sugar to 25 parts food adds 4 per cent.; one part sugar to 33 parts food adds 3 per cent.; one part sugar to 50 parts food adds 2 per cent.

* * This dipper is made by Cereo Co., Tappan, N. Y.

Example: If it is desired to make a mixture, fat 3 per cent., proteids 1 per cent., sugar 6 per cent., from rich milk, look in the proteid column under rich milk for 1 per cent. Move in a horizontal line to the left until percentage nearest to 3 per cent. is reached under rich milk; this is in the "Top eleven ounces" column. The first column shows that one-third of the mixture should be from the top eleven ounces of milk. The sugar column shows 1 per cent.; from the desired 6 per cent. subtract 1 per cent., 5 per cent. is to be added. Two level tablespoonfuls of granulated sugar or three of milk sugar equal one ounce. To vary fat or proteid, pick out the combination that is wanted and dilute the milk that will give it. In most cases the actual percentages will fall a little below the figures for rich milk in the table, as the milk used may not be very rich. This error is always on the safe side. Any quantity of food can be made up. Dip out the right milk and dilute all or part.

117 WEST EIGHTY-THIRD STREET.

NOTE.—Since the above was written the writer's attention has been called to a key to home modification of milk by Gruler, based on making up twenty-four ounce mixtures from standardized 16 per cent. cream and 4 per cent. milk. These are expensive and not generally obtainable. Gravity cream which is often considered 16 per cent. cream not infrequently contains as high as 28 per cent. fat. When such cream is used almost double the intended percentage of fat is introduced into the mixture. The key here given is intended to keep the margin of error within narrow limits, no matter what kind of milk is used, and to render impossible the addition of excessive quantities of fat.

Post - Diphtheritic Paralysis.—E. E. Lasett (Victoria University, M.D. Thesis) as a result of a careful study into the pathology of post-diphtheritic paralysis, concludes:—(1) That, in the paralytic stage of diphtheria, the only important change discoverable is situated in the peripheral nerves. (2) That, if there are any changes in the cells during the preparalytic stage, they do not stand in a causal relation to the parenchymatous degeneration in the nerves. (3) That, therefore, the parenchymatous degeneration of the nerve fibres must be regarded as the primary lesion.—*Canada Lancet.*

Clinical Memorandum.

REPORT OF A CASE OF TETANY.

BY T. J. ELTERICH, M.D.,
Allegheny, Pa.

The following case was seen November 15th in consultation with Dr. J. C. Boggs of Allegheny.

Thomas H., fourteen months old, was nursed for ten months and then fed on malted milk. He has been suffering from chronic intestinal catarrh for a number of weeks. On the morning of October 31st the mother noticed peculiar contractures of the hands and feet. These contractures lasted for three or four days and then disappeared. About two weeks later, when I first saw him, he presented the following condition:

The patient is poorly nourished and anemic. The fontanel is almost closed; the expression is anxious and he is evidently suffering great pain. The abdomen is somewhat distended. Careful examination reveals no evidences of rachitis. He has several



CASE OF TETANY.

bowel movements in twenty-four hours. The stools are offensive and contain mucus. The fingers are tightly flexed over the thumbs into the palms of the hands. The hands are flexed on the forearms. The feet are extended in the equinus position and

the toes flexed on the plantar surface of the feet. (See cut.) Chvostek's facial symptom is present and occasionally the infant has slight attacks of laryngospasm.

This condition had appeared suddenly the day before I saw him and it persisted for more than a week. The patient eventually recovered.

The treatment consisted in thorough evacuation of the bowels by calomel and high enemata. Sodium bromid and chloral hydrat, in three to five grain doses each, were given every three or four hours.

Scarlet Fever Serum.—Reference was made in the *British Medical Journal* not long ago to the fact that Dr. Moser, of Vienna, had used a serum prepared from an organism regarded as the cause of scarlet fever in 400 cases with a mortality of between 8 and 9 per cent. We think it right therefore to state that the discovery of the organism is claimed for an American investigator, Dr. Class, who described it in the *New York Medical Record* of September 2d and October 7th, 1899. In the Bulletin of the Health Department of Chicago for the week ending October 25th, Commissioner Reynolds says with regard to Dr. Class' germ: "The organism of this disease is now identified by the laboratory experts as readily and as certainly as is the diphtheria organism, and it is a cause of chagrin to the department that its limited resources prevented the discoverer of the germ from following up his efforts to prepare a curative serum for the disease similar to that of antitoxin for diphtheria. A photograph in the Commissioners' office shows the discoverer, Dr. W. L. Class, one of the Department Medical Inspectors, demonstrating the scarlet fever organism before a group of bacteriologists and physicians in the laboratory department, April 10, 1899. Cultures of the organism were subsequently taken abroad by Dr. Gradwold, of St. Louis, and there can be no doubt that the scarlet fever serum prepared by Professor Moser, of the St. Ann's Hospital for Children in Vienna, and exhibited last month at the Congress of German Physicians and Naturalists at Carlsbad, is the product of these cultures."—*British Medical Journal*.

ARCHIVES OF PEDIATRICS.

MARCH, 1903.

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INSTRUCTION IN CONTAGIOUS DISEASES.

There is no group of diseases of which the proper management is of such vital importance to the general public as the eruptive contagious fevers, especially small-pox, chicken-pox, measles, and scarlet fever. Proper management depends, in the first place, upon their prompt recognition by medical men. This in turn depends upon the familiarity of physicians with the varying phenomena of the onset of these diseases and particularly with their characteristic eruptions. Text-book or didactic instruction in these matters is of almost no use. One must have seen the eruptions many times, before he attains any facility or sureness in their recognition. This implies that every medical student

should have seen and examined a number of cases of each one of these diseases before he undertakes to practice his profession; yet it is a safe proposition that the average medical student at graduation has less practical knowledge of these eruptive fevers than of any other equal field in medicine or surgery. The fruits of this ignorance are reaped every winter in the epidemics of these diseases in various parts of the country. The experience with small-pox within the past few years is still fresh in the minds of everyone. The facility with which this scourge was called chicken-pox, Cuban itch, etc., may have surprised some, but certainly not those who are familiar with the amount of instruction usually given to students in these branches.

The deficiency in instruction is due, in part, to the fortunate rarity of the outbreaks of this disease, but in still larger part it is a natural result of the policy of boards of health and municipal authorities in dealing with all these affections. Every case of these contagious diseases is hurried to an isolation hospital far removed from the city and difficult of access even to those privileged or required to go there. That it is not only important but necessary that medical students should be enabled to observe these cases has either not been recognized or has been entirely disregarded.

In so far as isolation under such conditions is necessary for the protection of the public no one can quarrel with it, but it seems to us that the fact that the proper instruction of medical students in these diseases is a very important link in this protection should receive much more attention than it has in the past. No well-informed medical man doubts that, at the present time, it is quite possible to carry on such instruction under conditions which would prevent any danger of the dissemination of the affections in question. In view of these facts it seems to us that the authorities in providing for the care of patients affected with these diseases should recognize the necessity of the instruction of students and in the location of the requisite hospitals and in their arrangement make such provisions as will render adequate instruction not only possible but practicable.

PEDIATRICS IN BRAZIL.

We have received a copy of the statistical report of the dispensary service of Dr. Olinto De Oliveira, Professor of Clinical Pediatrics in the Faculty of Medicine of Rio Grande de Sul. It is of interest as giving us a glimpse of the work of our colleagues living under the Southern Cross. That the service in question is an active one may be judged from the fact that 2,642 patients under the age of fifteen years were received during the year 1901.

In the mortality list gastroenteritis occupies the chief place, but the period of its activity is from January to March, November and December. In like manner the highest mortality is in December, the lowest in August. Next to gastroenteritis on this list stands tuberculosis, to which is credited one-half as many deaths as to the former cause!

In the list of acute contagious diseases, we find grippe leading with 249 cases out of a total of 422, and note with interest that 2 cases of bubonic plague are recorded. Among the chronic infectious disorders, tuberculosis leads with 95 cases, and congenital syphilis ranks next with 51, in a total of 252. Of the rarer affections, no less than 6 cases of ankylostomiasis are included in this category, and under the heading of disorders of the digestive system there are 46 cases of intestinal parasites. Even this cursory view makes it apparent not only that the service of the dispensary is active, but that it includes much of great clinical interest and importance.

Bacillus Dysenteriae.—Fisch (*St. Louis Courier of Medicine*, December, 1902) thinks it is too early to form conclusions as regards Duval and Bassett's discovery, but seemingly there is a relation of the bacillus to a great number of intestinal infections of infants. In Zahorsky's studies the number of positive reactions was rather puzzling, and in a few tests of the blood from healthy infants the results were always negative. He thinks that under the head of summer complaint a number of etiologically different conditions are gathered, but that Duval and Bassett have succeeded in clearing up a part of the question.—*Journal of the American Medical Association.*

Bibliography.

A Text Book of the Science and Art of Obstetrics. By **Henry J. Garrigues, A.M., M.D.**, Consulting Surgeon to the New York Maternity Hospital, etc. Pp. xxx.-844. Illustrated. Philadelphia and London : J. B. Lippincott Company. 1902. Price, \$5.00

It is with some surprise that we read the table of contents of Dr. Garrigues' book. The portions of this volume that concern the pediatrician are contained under the heading "Normal Division" as chapter viii. of part iii., chapters iv., v. and vi. of part iv., and all of part v., which consists of fifteen chapters with the caption, "Notes on Diseases of New-born Children."

The author is a persistent advocate of the Credé method to prevent ophthalmia. He allows other treatment in private practice but not in hospitals. He states that it is rational to dress the cord antiseptically but in his own private cases he uses a dressing of absorbent cotton.

Dr. Garrigues gives the average initial loss of weight as from seven to eight ounces. This is rather more than the total loss recorded by most observers. Many young babies will do better without the two baths a day advocated by the author.

The following paragraph may be instructive even if not elegant:

"When the infant is taken up every three hours, its diaper should be changed. If it is soiled, the dirt should be wiped off and the bottom and the genitals washed with luke-warm water," etc.

The author's directions are to do what "our grandmothers did" and boil milk for a few minutes because he has been told that a certain number of microbes in the milk is unavoidable. He has had success with the artificial foods when milk occasioned diarrhea. A common experience but a bad rule to give practitioners who are easy going.

In part v. ophthalmia neonatorum is again considered in more detail than was given in the first part of the book. Mastitis, skin diseases, colic, and other minor diseases have more space than they deserve, while congenital diseases of the heart has a perfunctory half page. Calomel is advised for the treatment of

congenital syphilis and Dover powder is recommended when the former causes diarrhea. Mercury with chalk is not mentioned.

The articles are not complete but there are many practical suggestions that cannot fail to help the obstetrician. A revision of the chapter on infant feeding and more explicit advice on the dressing of the umbilicus would add materially to the value of Dr. Garrigues' important work.

It is not necessary to criticise the idioms and construction of the paragraphs but it is to be hoped that the author will allow himself an English editor for the next edition.

Transmissibility of Human Tuberculosis to Calves and Goats.—Moeller (*Deut. Med. Wochenshr.*, October 2, 1902) has performed a number of experiments with calves and goats to test the transmissibility of human tuberculosis. He formulates his results as follows: Calves do not develop tuberculosis when human tuberculosis sputum is fed to them or is given by subcutaneous injections; when tubercle bacilli are given in pure cultures by inhalation, by intraperitoneal and intravenous injection, or when rubbed into their skin; nor when human tubercle bacilli are injected into the peritoneal cavity after having been passed through goats. Goats are not made ill even if they are fed enormous quantities of sputum; if very large quantities are injected intraperitoneally, a nodular condition of the peritoneum resulted, but in no single instance was a spread of the disease throughout the entire body produced.—*American Medicine*.

Calomel in Pediatrics.—Schoen-Ladnewski (*Jahrb. f. Kinderheilk*, Bd. LVI.) does not believe in administering calomel for a laxative, preferring castor oil for this purpose, but he expatiates on its almost marvellous action in flatulent colic, dyspepsia, febrile gastrointestinal catarrh, convulsions from indigestion, icterus, hydrops and syphilitic and scrofulous eye affections. He orders it always in the form of calomel ophthalmicus, as the finest pulverized, and gives ten or twelve doses of .005 to .02 gm., according to age. He warns that traces of sublimate develop in the mixture of calomel and sugar in time, and hence it should always be made up fresh. Sunlight decomposes calomel. Salt and salted foods, bitter almonds and cherry laurel water, iodine and ammonium chlorid have a tendency to transform part of the calomel into sublimate.—*Journal of the American Medical Association*.

Society Reports.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, December 9, 1902.

DR. SAMUEL MCCLINTOCK HAMILL, PRESIDENT.

DR. ABRAHAM JACOBI, of New York, addressed the society on the subject of

PERIBRONCHITIS AND INTERSTITIAL PNEUMONIA.

(See ARCHIVES OF PEDIATRICS, January, 1903, page 1.)

DR. J. P. CROZER GRIFFITH said that he had had many opportunities of listening to Dr. Jacobi, and had never failed to learn something. He confessed that either he had never seen the distinctly primary and milder cases that Dr. Jacobi had described, or that he had failed to recognize them as being of the character that Dr. Jacobi considers them to be. He had, however, seen cases that, he now recognizes, resembled some of those described by Dr. Jacobi. These gave a strong suggestion of being tuberculous, but recovered entirely. There were no positive indications that the condition had been tuberculosis. The speaker mentioned the case of a child, in which there were symptoms indicating probable apical tuberculosis, and in which there were physical signs of cavity-formation, but in which entire recovery took place and in which the whole later course was such as to indicate that it probably was not tuberculosis. This case, he thought, would conform closely to Dr. Jacobi's description of primary apical interstitial pneumonia.

The variety that Dr. Jacobi has classed as degenerative the speaker had seen more frequently. These cases were most commonly considered, at first, to be bronchitis or pneumonia. The condition persists, however, and does not soon show signs of improvement. This state of things may last for months. The danger of error in such cases is in the tendency to call them tuberculous, as soon as it is evident that the condition is chronic. Dr. Griffith referred to a case that was at first thought to be ordinary croupous pneumonia, but that was peculiar in the fact that the physical signs developed very slowly. Apparently this child got entirely well and was up and running about. About five months afterward, however, although symptoms of pulmonary disease

were absent, the child was examined, merely to see whether all the physical signs had completely disappeared. To his great surprise he then discovered the evidences of entire consolidation of the greater part of one lung. It seemed at first as if this must be tuberculosis. After some months more, however, the child made a complete recovery.

The speaker had also seen the other class of cases to which Dr. Jacobi had referred, in which there are no definite symptoms of pulmonary disease, but in which the patients show indefinite evidences of ill health, usually accompanied with slight fever, and in which a physical examination brings to light slight pulmonary changes. These cases are especially likely to be thought to be tuberculosis; but they not infrequently progress to entire recovery, and, in such circumstances, seem to be nontuberculous. Of course, the question must arise and must often remain undecided, whether the case is not, after all, one of healed tuberculosis. The speaker had seen some instances that indicated that this was the case.

The point of greatest importance referred to by Dr. Jacobi, and the one in which he wished to agree with him entirely, was that interstitial changes in the lung do not always mean either tuberculosis or syphilis.

DR. STENGEL stated that in the conception of pulmonary conditions the clinician has come somewhat under the ban of the pathologist, and has surrendered certain of his older beliefs. The pathologist, however, has in his turn set up certain dicta that are not always so reliable as might be desired. For example, in the case of small fibrous nodules, or of larger indurations or puckerings of the apices, the pathologist claims a healed tuberculosis, without special evidence that this is always true. It might well be that such lesions could result from syphilitic processes or from simple, non-specific inflammation perhaps, at times, of the subchronic type described by Dr. Jacobi. The speaker himself has always looked upon interstitial pneumonia as a secondary, and not a primary disease, excluding, of course, the white pneumonia of infants and the perivascular and peribronchial syphilitic pneumonias of later life. Dr. Stengel said that Dr. Jacobi had called attention to certain physical peculiarities that every physician would at once recognize as not infrequent, and that Dr. Jacobi regards as the result of a slowly progressive, fibrous change in the lungs. These physical peculiarities, mainly

characterized by thoracic deformity and contraction of the lungs, are commonly looked upon as evidences of a phthisical habit or a maldevelopment of the chest; and the thought suggested by Dr. Jacobi that these conditions are, on the contrary, the results of progressive disease, is new. That there are cases of indurative change in the apices, suggesting tuberculosis by their physical signs, and yet not tuberculous in character, was shown by one of the speaker's Philadelphia Hospital patients, in whom the degenerative type of change, as Dr. Jacobi uses this term, was present. There were marked signs of cavity-formation and numerous râles. Tubercle bacilli were repeatedly looked for, but were not found. The patient was finally put under treatment with potassium iodid, after which all the signs disappeared. The speaker has also seen other cases in which there were signs very suggestive of tuberculosis, but in which the later course of the disease rendered this diagnosis untenable. He recalled cases in which there were no signs of tuberculosis except local retractions of the chest. These have sometimes been called healed tuberculosis, but it may be possible that some of them are due to chronic interstitial pneumonia. The difficulty is always in determining whether or not a primary pneumonia of some other type has preceded the interstitial changes. Secondary interstitial pneumonia following ordinary pneumonia is, of course, well recognized. The two cases of distinctly primary interstitial pneumonia that Dr. Stengel had seen postmortem were both syphilitic.

DR. J. MADISON TAYLOR asked Dr. Jacobi whether he would be kind enough to state the peculiarities of the respiratory sounds in the condition that he had discussed.

DR. JACOBI, in reply to Dr. Taylor, said that one must discriminate between uncomplicated cases of primary interstitial pneumonia and those in which bronchitis, croupous pneumonia, or other conditions are present, in addition to interstitial change. In the primary cases there is, in the early stages, simply exaggerated puerile breathing, with few or no râles; but when the hyperplasia increases, the breath-sounds become reduced in intensity. When, however, atrophy and hardening of the lung begin to become at all pronounced, the breath-sounds tend to become bronchial, and the bronchial quality grows more intense as the induration and contraction of the growth of connective tissue in the lung increases. Finally, in the extreme cases, the breath-sounds become distinctly bronchial.

In closing, Dr. Jacobi said that he merely wished to repeat one statement. Most of these cases are seen in adults, but in nearly all instances the disease has begun in infancy. The physical signs are acquired very early in childhood, but they persist. He very frequently sees adults that exhibit some flatness of the chest about the apex, usually on the right, a dull percussion-note, bronchial breath-sounds, bronchophony, and the other signs of consolidation, for instance, prolonged expiration. It is exceedingly important to distinguish these cases from those of tuberculosis. There is a great tendency to order them off at once to another climate, because of their being considered to be tuberculous; and the speaker has known this advice to be frequently given. In these cases, however, the disease is neither an active nor a dormant tuberculosis; it is a condition that is stationary and is without danger. The important points that distinguish it from tuberculosis are the fact that there are no râles, that there is no cough nor history of cough, and that the signs are found to be absolutely stationary on repeated examinations. Dr. Jacobi emphasized the fact that he sees this condition frequently and is often obliged to determine the nature of these cases. He calls the condition chronic interstitial pneumonia, and not old tuberculosis.

Tetanus and Vaccination.—McFarland (*Journal of Medical Research*, 1902), as a result of an analytic study of 95 cases of this rare complication, concludes:— (1) Tetanus is not a frequent complication of vaccination. (2) The number of cases observed during 1901 was out of all proportion to what had been observed heretofore. (3) The cases are chiefly American, and occur scattered throughout the eastern United States and Canada. (4) The cases have nothing to do with atmospheric or telluric conditions. (5) A small number occurred after the use of various viruses. (6) An overwhelming proportion occurred after the use of a certain virus. (7) The tetanus organism is in the virus in small numbers, being derived from the manure and hay. (8) Occasionally through carelessness or accident the number of bacilli becomes greater than usual and may lead to the epidemic occurrence of tetanus. (9) The future avoidance of the complication is to be sought for in greater care in the preparation of the vaccine virus.—*American Medicine*.

THE NEW YORK ACADEMY OF MEDICINE.—SECTION
ON PEDIATRICS.

Stated Meeting, January 8, 1903.

HENRY HEIMAN, M.D., CHAIRMAN.

DR. W. N. BERKELEY presented a six-year-old boy showing

THE TONSILLAR ULCER OF VINCENT.

The child had first complained of sore throat two nights ago, and this had been accompanied by no special constitutional disturbance. Examination revealed a small sloughing area on the upper margin of the right tonsil, and on pushing aside the slough a deep, excavated ulcer was seen. Smears from this showed the typical spirillæ and peculiar elongated bacilli described by Vincent. No special treatment was demanded other than the use of antiseptic washes and a fluid diet.

DR. CHARLES HERRMAN said that, in most cases of this kind, the ulcer was not quite so sharply cut, and it was apt to be of a greenish-brown color. He thought it probable that further bacteriological study of this affection would show that the same ulcerative process existed also in other parts of the body.

DR. SARA WELT-KAKELS presented a little girl showing

MALNUTRITION; SMALL HEART; PROBABLE HYPERPLASIA OF THE
BLOOD VESSELS.

There was no family history bearing on the case. The child, though born at term, had always been puny and delicate, and since last June had sought advice of many physicians because of severe and constant headache, constipation and loss of appetite. A hypermetropia was corrected by glasses, but without materially relieving the headache. Examination showed the child to be greatly emaciated and to have a greenish complexion. The cardiac impulse was found in the fourth intercostal space, and the peripheral arteries were so small that in order to take the pulse it was often necessary to feel the brachial instead of the radial artery. At times she would become more or less cyanosed. An examination of the gastric contents one hour after a test breakfast showed only a moderate deficiency in free hydrochloric acid. She passed daily 350 to 500 cc. of urine instead of 1,140 cc., the nor-

mal quantity. Microscopical examination of the urine was negative. There was no sugar and no albumin, but the daily quantity of urea was 6.25 gm. instead of 18 gm. Examination with the Gärtner tonometer showed the blood pressure to be only 69 mm., whereas it normally varied between 100 and 120 mm. It was hoped that microscopical examination of the blood would throw light on the case, but even a careful differential blood count was negative. The condition appeared to be the result of a hyperplasia of the blood vessels or of a relatively small heart. The speaker then exhibited the Gärtner tonometer, and demonstrated the method of using this instrument in clinical work.

DR. HERRMAN remarked that these cases really were examples of infantilism.

A CASE OF PAROXYSMAL HEMOGLOBINURIA.

DR. CHARLES HERRMAN reported this case, occurring in a boy of four years, whose parents were apparently healthy. (See ARCHIVES OF PEDIATRICS, February, p. 105.)

DR. L. E. LA FETRA said that last summer he had seen a case of hemoglobinuria, which had yielded promptly to quinin, although no plasmodia were found in the blood. For the past two months there had been no attacks.

DR. HENRY HEIMAN thought an arteriosclerotic condition had resulted from the action of the syphilitic virus in the case reported by Dr. Herrman.

DR. HERRMAN replied that there must be some other factor essential, because arteriosclerosis was not uncommon, while paroxysmal hemoglobinuria was very rare. He thought this other factor was probably a peculiar excitability of the vasomotor system.

DR. MAX TOEPLITZ read a paper on

OTITIS PURULENTA NEONATORUM ET INFANTUM.

He pointed out that the tympanic ring was much shorter in the infant than in the adult, that the mastoid antrum and middle ear were nearer the surface of the skull and that the Eustachian tube was wider, shorter, and more nearly horizontal in childhood than in adult life. Sometimes the high fever of acute otitis media, with stupor or convulsions, misled one into diagnosing cerebral disease. A positive diagnosis of meningitis was only possible through the aid of lumbar puncture. Otoscopy could be practiced with

comparative ease in children, but not in the newborn or in infants. The acute stage might terminate in a few hours or last for a week or two, and then end in spontaneous perforation, in chronic otitis, or in death from meningitis. When meningitis occurred, the inflammation extended through the mastoid-squamous fissure. Primary inflammation of the labyrinth in children manifested itself by fever, convulsions, a tendency to vomiting, dullness of the sensorium, stiffness of the neck, and an irregular pulse. Acute otitis was due to bacterial invasion, the offending organisms being either the diplococcus pneumoniae, the streptococcus pyogenes, or the staphylococcus pyogenes. They entered through the Eustachian tube in connection with the use of the nasal douche, or with sneezing or blowing the nose. Inflammation of the ear was twice as frequent in children as in adults. A child suffering from otitis should be kept in bed, on fluid diet, and the bowels should be evacuated. At first steam and hot water-bags were beneficial, but when it was evident that there was an accumulation of pus, paracentesis of the drum should not be delayed. Having carefully sterilized the auditory canal, a free opening should be made in the posterior inferior quadrant of the drum, and the canal closed with sterile cotton. It was true that spontaneous perforation occurred, but it always made an irregular opening, and the irregular scars left in healing were prone to interfere with hearing in later life. Ordinarily he was in favor of the dry method of treatment after perforation, *i.e.*, wiping off the secretions, dusting with a thin layer of some antiseptic powder and closing the canal with sterile cotton. However, this treatment should be carried out under medical supervision or by an exceptionably intelligent attendant. In very many cases it would be safer to rely upon syringing.

DR. E. GRUENING said that in children inspection of the ear in cases of otitis would often fail to show either circumscribed or general bulging of the ear drum; it would be more apt to show a general thickening of the epidermis and an obliteration of the usual landmarks. When this occurred it was proper to promptly perform paracentesis of the drum, and it was well to examine both ears. This winter he had seen a number of cases complicated with bronchitis, and had been astonished to see how rapidly the cough subsided after puncture of the ear drum. As it was impossible to make the canal aseptic in children, syringing should be employed, using a fountain syringe with the bag elevated only six

or eight inches above the patient's head. In adults he preferred the dry treatment.

DR. CARL KOLLER said that it was now known that sinus thrombosis was comparatively common, and that it was the result of direct infection of the bulb of the jugular vein.

DR. E. FRIDENBERG said he had seen many cases of middle ear disease in children which had simulated other affections, especially gastroenteritis or intestinal catarrh. Some of these cases had been diagnosticated typhoid fever. A free incision of the ear drum was very necessary, when paracentesis was indicated. The old paracentesis needle should not be used, because it did not make a large enough opening.

DR. CHARLES G. KERLEY said he had known a diagnosis of pneumonia in a child more than once to be rudely set aside, to the great chagrin of the attending physician, by a sudden subsidence of all the urgent symptoms, coincident with the appearance of a discharge from the ear. In his experience, these ear affections were practically always associated with adenoids. He could not agree with Dr. Fridenberg that nasal douches were not a cause of otitis. He knew of one institution which kept its aurist busy during the years when it was the custom to employ nasal irrigations freely, whereas since that practice had been abandoned the number of cases of otitis had been greatly diminished. After the performance of paracentesis of the drum he preferred to make use of irrigations of a one to ten thousand solution of the bichlorid of mercury every three hours for the first day or two.

DR. FRIDENBERG said that he too believed that nasal irrigations often gave rise to otitis media, but his contention was that they did so by the traumatism inflicted, quite independently of the introduction of bacteria.

DR. TOEPLITZ closed the discussion. He said he was in the habit of irrigating the ear in these cases as often as every hour at first, using the fluid at a temperature of 108° or 110° F. He had seen otitis purulenta produced in very many instances by the douche and by bathing, and he attributed this result to the bacteria introduced by the fluid. It was so important to make a free incision of the ear drum that he made use of a specially shaped knife for this purpose.

THE NEW YORK ACADEMY OF MEDICINE.—SECTION
ON ORTHOPEDIC SURGERY.

Meeting of December 19, 1902.

DR. GEORGE R. ELLIOTT, CHAIRMAN.

RECEPTION GIVEN TO PROFESSOR ADOLF LORENZ, OF VIENNA.

DR. ROBT. F. WEIR, the President of the New York Academy of Medicine, called the meeting to order and delivered a brief address, then turned the meeting over to Dr. George R. Elliott, Chairman of the Section.

Dr. Weir remarked that an introduction of Professor Lorenz was almost superfluous as he was well known, not only in his own department, but in advanced science generally; that his demonstrations of his methods in this country were of educational value to the American physician as well as of great benefit to the special department of orthopedic surgery. The opportunity of actually seeing Dr. Lorenz at work offered a chance of learning altogether different from and in advance of simply reading about his methods, as object teaching is a superior educational method. His special peculiarities were observed in a way not revealed from his writings.

THE CHAIRMAN OF THE SECTION said that it was a great pleasure to give expression to the honor the Section felt in having Professor Lorenz present. It was also a great personal satisfaction to know that his work had received some of the recognition it deserved from medical men. Much had been said about the great force used. It was true that Professor Lorenz was a very strong man, but those who had seen him operate must have observed that the essential element in his operations was the intelligent direction of that force, graduating it to overcome the resistance of the contracted tissues, so that they were reduced to a state of flaccidity. Dr. Elliott further said that six years ago he reported his first case of congenital dislo-

cation of the hip successfully treated by the Lorenz method, and in the report made the following statement: "The operation which we have just considered is a real advance in surgery and, throwing all enthusiasm aside, I feel convinced that it will soon be performed with strikingly good results in all civilized parts of the world." It was unnecessary to say how that prediction had been fulfilled. The Chairman then called upon Professor Lorenz to address the meeting.

PROFESSOR LORENZ delivered an address on

SOME OF MY PRINCIPLES IN ORTHOPEDIC SURGERY.

"I consider it a great honor to be allowed to appear before you and I know of no better way to show my gratitude than by asking your permission to explain to you some of the principles which hitherto have ruled my orthopedic work.

"I hope to meet your approval at least regarding some of these principles, as to others which may rouse your opposition for the moment, I hope you will find them worthy of your objective trial. Even if these principles do prove to be different from yours, certainly we, who are separated by the Atlantic as to the places of our work, completely agree in our aim, that is, to help our patients in the best way. As to my methods, I can recommend them as both safe and successful to the patient. In saying this, I touch upon my leading principle, that is, curing my patients without danger of loss of life. Luckily deformities seldom offer what we call *indicatio vitalis*, therefore, when we operate on deformities we should never arouse even the possibility of putting the life of our patient in danger. Following this principle, I generally prefer bloodless operations to the bloody ones. Usually the results are the same, but in many cases those of the bloodless ones are even better. As long as the bones are elastic enough, I prefer osteoclasis to osteotomy; this latter operation is exclusively reserved for adolescents and adults. In hip deformities I prefer bloodless corrections to osteotomy as long as even the slightest mobility of the joint can be secured; only in cases of complete bony ankylosis do I operate with the chisel.

"All cases of knee contracture I correct by the intraarticular modelling redressment as long as even the slightest mobility can be found. Only cases of complete bony ankylosis of the knee joint, which are rarer than is usually believed, are reserved for the bloody operation.

"In all deformities of the foot, both paralytic and congenital, I rely exclusively upon my modelling redressment of the foot, and from a thousandfold experience I can assure you that the results are generally beyond expectation. In my opinion the wedge-shaped excision of the bones of the foot newly recommended by the French, is nothing more than a deplorable mutilation of the foot. The results of the modelling redressment of club foot have been preferred by many others and I am happy to say that, at least in Germany, this method is predominant.

"On the whole, I daresay that I prefer bloodless operations to the bloody ones as long as any possibility exists of securing the result in this way. According to this principle I cannot sympathize with the total extirpation of the sternocleidomastoideus in wryneck. In my experience the subcutaneous myotomy of this muscle in connection with the modelling redressment of the cervical scoliosis is perfectly sufficient to cure the *caput obstipum* thoroughly and without leaving a scar. In this realm I go even further, as the congenital *caput obstipum* in children can be cured even without tenotomy, only by myorrhesis of the sternocleidomastoid muscle, and the results obtained by this method are the most perfect ones from a cosmetrical standpoint. The ruptured muscle regains its normal length as well as its normal elasticity to such a degree as to allow the head to move freely to the opposite side. Besides this, the ruptured muscle retains a normal prominence with its partner, restoring the normal configuration of the neck, in this way avoiding the known applanation of the operated side which usually occurs after open or subcutaneous myotomy.

"Following this principle you will share many advantages with your patient. The latter readily consents to be operated upon as he runs no risk of life and as for yourself, you will feel quite easy about him.

"Another principle which I have always followed is the so-called central correction of deformities, which means that every deformity should be corrected in the vertex of its angle. If you should prefer to correct a deformity in one of the sides of the angle, even near the vertex, the deformity itself would remain and instead of a correction you would have only a compensation for the deformity. This compensation implies some shortening of the side of the angle, that means of the leg, which shortening should be avoided under all circumstances. This principle is very important with regard to the contractures of the hip joint. It is

obvious that subtrochanteric osteotomy contradicts the above mentioned principle. By correcting or compensating the deformity you shorten the leg. According to this principle of central correction, I always do central, that is pelvitrochanteric osteotomy. Having performed this operation, correction is very easy without causing any further shortening of the leg. I object even to oblique subtrochanteric osteotomy, although it avoids shortening by a complicated and difficult extension after treatment by which the patient is confined for some weeks to his bed, instead of being able to get up a few days after the operation.

"Following the principle of central correction you will also object to supracondylic osteotomy or osteoclasis in correcting the contractures of the knee joint. In preferring central, that is, intraarticular correction, you will avoid shortening the limb. In correcting genu valgum the principle of central, that is to say, intraarticular correction cannot be thoroughly attended to because, except in cases of young children, a loose knee is to be feared, and besides the treatment takes too much time. In genu valgum supracondyloid osteotomy is still the predominant method because of its general reliability, but beyond doubt epiphysiolysis on the lower end of the femur allows better correction of the deformity, being a more central method than the supracondylic osteotomy. Unfortunately the method of epiphysiolysis is available only in children from five to sixteen years of age.

"Another important principle of modern orthopedic surgery is that of absolutely saving the bones by dividing the soft parts as far as circumstances may demand it. This conservatism toward the bones and this radicalism against the soft parts (just the inversion of a principle of former times) condemns all cuneiform osteotomies and resections *en bloc* of the bones and makes it a rule to correct deformities by simple linear osteotomy, sacrificing the soft parts as far as may be desirable. Indeed it is very easy to correct every hip deformity of whatever degree by similar linear (pelvitrochanteric) or central osteotomy, after having thoroughly divided the abductors and the subspinal soft parts. It is of no importance whether you divide them in open wound or subcutaneously, you must only divide them thoroughly. The wedge-shaped excisions of bones in correcting knee contractures are likewise to be avoided, or, at least, to be restrained to a minimum by regardless radicalism against the soft parts in the fossa poplitea. As to the excisions of bones in the treatment of club foot, I have mentioned above, I abhor them.

"This principle, to correct deformities only by simple linear osteotomy, is even available in those most difficult cases of bow legs with anterior convexity of the bones. In such cases I apply one or two linear osteotomies to the centre of the deformity, then I add Achillotenotomy and sharp screw extension above the ankles, until correction is allowed.

"Another principle of common interest refers to the treatment of tubercular diseases of the joints in children, and to the treatment of deformed paralytic limbs. I must avoid discussing the question whether operative or conservative treatment should be carried on in these cases. My standpoint on this question is rather one of expectancy. But I do not hesitate to declare that thus far I have never made resections of tubercular joints in children, and that the results of conservative treatment seem to me far better than those of operative treatment. Nevertheless I am far from denying the necessity of operating in some special cases, particularly in common hospital practice. However, the principle of which I will speak refers to the question whether or not mechanical treatment should be carried on in a way to exclude all functional work of the limb during the whole treatment. Observation of nature let alone seems to me to give the answer to this question. If we contemplate a case of hip disease never interfered with by any treatment at all, we learn in many cases that nature, unhelpt by our mechanical means, needs no more time to cure the disease than we do. After some two or three years all may be over. During this time the sick children have been confined to bed by great pains in the hip joint some months only. During the rest of the time they walk about without the help of crutches as well as they can, using the limb according to the actual state of sensitiveness. After all the disease heals without any suppuration even, and finally we see these children come to us to get rid of their deformity. We find contracted limbs, but fit for function even under the unfavorable mechanical conditions of the deformity. We find the bones solid and the soft parts not so much wasted as we expected; and last but not least, we find that the growth of the limb has not been much interfered with by the disease. These cases are the best objects for operative treatment because the good state of the legs very soon enables them to profit by the correction of the deformity. If we compare one of these cases of natural healing to the results of our mechanical treatment, which may have begun at the first sign of the disease,

we will find that we have scarcely shortened the course of the disease. We accomplish that pains have been lessened or suppressed, and that the limb may be in a tolerably good position, but surely we shall find the leg in a wasted condition, the muscles slack, the bones lacking solidity, and quite unable to support the weight of the body, although pains have long since disappeared. Probably we shall find, besides, that the growth of the leg has been much interfered with by the disease. There can be no doubt that this deplorable condition of the limb is due to the fact that both by suspension and fixation by our mechanical means the leg has been totally excluded for many years from every function of movement and weight carrying. From this consideration is derived my principle to exclude the diseased limb no longer from a measured function if severe pains will not forbid it. I never allow any movement of the diseased joint, but I suspend the weight only as long as the pains demand it, always taking proper care to procure slight abduction of the leg. As soon as the pains allow it I begin to attend to the muscles by massage. Of the movements, only active and passive abductions are made in the later after-treatment to prevent the tendency to abduction.

"My final aim is to procure a solid ankylosis of the hip joint combined with good position of the leg, experience having taught me that great mobility and bad function with lack of any endurance are common allies. With greatest enthusiasm I would welcome a method which would procure a true bony ankylosis of the diseased hip joint, bony ankylosis of the hip and good position of the leg being the condition for the best result both from a cosmetic and functional point of view.

"As you may have seen from what I have said, I make little of the permanent extension. I consider extension only a matter of fixation, direct and indirect fixation together naturally give a greater degree of surety. I have said that no articulation attacked by chronic disease should be prevented from function any longer than is absolutely necessary. In saying so I turn against the method of treatment generally used in Germany, which makes the patients wear their pressure-relieving and fixing apparatus so long that they become slaves to them. This same principle I emphasize using in the treatment of paralytic deformities. I am convinced we render no great service to our patients by making them wholly dependent upon their apparatus; the limbs atrophy by exaggerated use of apparatus to such a degree that they become

useless for any function. It is my practice to correct thoroughly the paralytic deformities by modelling redressment, in case of need combining the transplantations of the tendons, and to fortify the rest of the muscles by massage and exercises in order to secure the obtained correction. For the rest, the patients must be accustomed to make use of their legs as much as possible without apparatus, or by assistance of the simplest one. Generally a flannel bandage or laced boot will give the necessary support. In any case I take care to secure the corrected position during the night by means of a simple apparatus. I think that enclosing the leg in a steel support is to be avoided as by so doing the leg will be excluded from any function. On the contrary, I try to make the leg independent of mechanical appliances as far as possible. Only in the treatment of total paralysis, which fortunately occurs rather seldom, the permanent use of mechanical support is indispensable. In the treatment of scoliosis I am wholly against the exclusive application of mechanical supports, especially against those which are worn day and night. I restrict the use of corsets to special cases which evidently want a support. Besides I take special care of the muscles of the back by exercising them and endorse the necessity of forcible anti-scoliotic gymnastics.

"Gentlemen, I think it is unnecessary to follow these principles in detail, and I hope you will not object to my endeavoring to solve the problems of orthopedic surgery by operative treatment and, if possible, by a bloodless one, and to restrain and simplify orthopedic appliances.

"If the surgical task has been thoroughly solved, orthopedic appliances, if necessary, may be of very simple construction so that special mechanical ateliers may be considered superfluous. If orthopedic surgery conceives and carries out its themes in such a way, then it will be possible to indulge in orthopedic surgery at every surgical station, even if great mechanical means may not be at hand. Then orthopedic surgery will not deny the democratic character which it must have to be able to communicate its progress and improvements to even the poorest children who may be in want of relief."

DR. V. P. GIBNEY said that he would like to tell the Fellows of the Academy of Medicine just how much he had learned from Professor Lorenz. He said: All this information given us this

evening about bearing weight on the joints, about correcting deformities, about destruction of muscles which produce deformity especially the abductors, has been something of a revelation. Nearly all medical men and medical students in this city during the past week have had the opportunity of witnessing his magnificent demonstrations. At the Hospital for Ruptured and Crippled he gave us his views about the management of hip disease, club foot and wryneck, and, while it seemed to him at first that they were rather antiquated, when Dr. Lorenz began to elaborate them, he felt that he was in the presence of a master. Many years ago we were taught to believe that the function of orthopedic surgery was to correct deformity. That, he observed, was still the English version, as the London orthopedists, whom he had met, had little to say about the prevention of deformity. Dr. Lorenz said that, at his clinic in Vienna, he allowed the mother to tell the story, and the mother would speak of the pain, the expression of abscess formation distending the tissues about the hip joint. We had been able in our hospital work for many years to predict this abscess formation. We find that in most cases a plaster of Paris bandage absolutely fitted to the hip, knee, and malleolus, extending from the free ribs down to the foot does control pain, and the child from having twenty or more cries at night will have few or none. Sometimes we get a case which does not yield, then we apply light and heavy traction in the line of the deformity. Finally we discover a deep abscess. Lorenz tells us only a confirmation of our own views that the pain in hip disease comes in exacerbations. We do not quite agree with him that it is necessary to give up traction. He employs traction sometimes, but simply for fixation. He further claims that we employ traction for too long a period, that we cause atrophy of muscle and destroy functional activity. His idea is to employ traction over short periods; he does not allow deformity to occur at all. We asked him if he aimed to get functional restoration, to which he replied,—“Yes, five or ten times in a hundred.” All orthopedists, I think, will agree that our aim is to get the hip cured, so that we will have perfect restoration of function. There is great room for reflection and whether we are all wrong about traction remains to be seen. Those of you who were present at the Cornell clinic saw his ability to take a virgin club foot, an extreme case, and within half an hour he and his able assistant, Dr. Mueller, had “pulpified” the foot, so to speak, had

rendered it "like a wet rag." Dr. Lorenz says that age is no deterrent in the bloodless correction of club foot, though when the bones cannot be managed by the hand he uses instruments for their manipulation. He spoke of a case of a man aged forty-two years where he had reduced an extreme equinovarus, with perfect restoration. If he has done no more good than to show what can be done in club foot, he is a great benefactor to the profession and to the public.

DR. ROYAL WHITMAN said he had been especially interested in Dr. Lorenz's contention that the anterior displacements, so-called transpositions, that so often followed bloodless operations, were to be classed as incomplete successes, rather than failures, as he had considered them. Recognizing, as he did, that the function in these cases was often greatly improved, he should now be encouraged to persist in maintaining the limb in an attitude of abduction and extension, even when it was evident that anatomical reposition had failed. The result was to be expected in older subjects and Dr. Lorenz even operated with the aim of simply transposing the head of the femur for the purpose of lengthening the limb and improving its functional ability. This treatment, which might be applied in adolescence or even later seemed to him a very important advance.

Another outcome of this line of work was its application to disabled hip joints in adults, as Lorenz had advocated recently. To illustrate, he had that afternoon seen a patient who had sustained a fracture of the neck of the femur one year ago. There was non-union, two inches of shortening, and the weak limb was used with the aid of crutches in an attitude of adduction and flexion. He had been able to assure the patient that if, under anesthesia, the limb were forced into extreme extension and moderate abduction (thus forcing the upper extremity of the femur forward beneath the anterior superior spine) and were fixed in this attitude by a Lorenz spica he would be able to discard his crutches and that his discomfort and pain would be relieved. He had this confidence because the treatment was based on correct principles and because he had already applied it in a modified form in other cases.

DR. REGINALD SAYRE remarked that he voiced the sentiments of all orthopedic surgeons in saying that much had been learned during Dr. Lorenz's visit. After having seen him operate, we

realized exactly what he did in a way we could not do from reading of his work and methods. He referred to the amount of force which we had seen could be used on the soft parts and thought this could not be realized unless seen. He thought that many who had seen Dr. Lorenz operate realized for the first time that eight to ten months were necessary to retain the parts in position and thought this had a fundamental bearing on Dr. Lorenz's success. The reduction was simply one step in the operation. It was not until he had seen him operate abroad, that he understood clearly the amount of strength that should be exerted and realized that his own failures had been due to insufficient force and too short a period of retention in plaster of Paris.

DR. HENRY LING TAYLOR said the visit of Professor Lorenz had been the most notable as well as the most picturesque event in the history of orthopedics in America. His procedures had been worked out with little regard for conventional practice, but with astonishing simplicity, directness and thoroughness, and he could not help feeling that his demonstrations would have a profound, lasting and happy effect on American practice. Personally, he considered it a rare privilege to have known him and to have seen his work.

DR. NEWTON M. SHAEFFER said he thought Dr. Lorenz had done a great deal for orthopedic surgery. Remembering the days of the elder Sayre, Taylor and Knight, and that America might be called the birthplace of orthopedic surgery, yet there had come to us from abroad a great teacher and one who had taught us. He remarked that many had seen him operate and do what was considered almost impossible. He had, at his clinic, presented to Dr. Lorenz a stubborn, resistant case of congenital club foot, expecting to see the doctor refuse to operate; nothing of the kind occurred. Dr. Lorenz corrected the deformity, as a matter of course. He said that the Lorenz clinic in Vienna had become the Mecca for orthopedists and that Americans were yearly flocking over there.

The president of the Academy proposed a resolution that a vote of thanks be offered to Dr. Lorenz, which was seconded by Dr. Homer Gibney and unanimously adopted.

The meeting then adjourned and was followed by a reception to Dr. Lorenz.

THE NEW YORK ACADEMY OF MEDICINE.—SECTION
ON ORTHOPEDIC SURGERY.

Meeting of January 16, 1903.

T. HALSTED MYERS, M.D., CHAIRMAN.

DR. TAYLOR presented a child six months old, with no history of sickness or injury, who was brought to the hospital on account of

SNAPPING OF THE LEFT KNEE.

On examination it was found that the tibia was voluntarily subluxated forward and was pulled back with an audible snap; this is specially noticed when the child kicks and cries. The condition was noticed only three weeks before by the mother. The birth was normal.

DR. SAYRE had seen some similar cases in children eight and nine years old. In his cases, if the leg were supported, the slipping did not occur.

DR. WHITMAN had seen a number of such cases as that presented, also others in which the motion occurred in other joints. Last week he observed a child who "snapped" both hip joints. He thought that in the cases of "snapping knee" the motion of the tibia was usually sideways rather than forward.

DR. SHAFFER presented

THREE CASES OPERATED BY DR. LORENZ

on December 18th, and spoke of a fourth. The first case, a girl aged eight, had had some little pain for a few days after operation, and slight ecchymosis in the inguinal region. She can go about with a chair, but does not walk alone. The second case had been taken home after a week and a half and had done well under those surroundings. The fourth case was satisfactory and could also get about with support. The other case was doing well but the child was not present.

DR. V. P. GIBNEY presented the following report of

OPERATIONS FOR CONGENITAL HIP-JOINT DISLOCATION.

Sex.	Age.	Single or Double.	Prev. Treatment.	Date.	Operator.
Female	9	Single	None.	Dec. 15,	Muller.
"	6	"	"	"	Lorenz.
"	7	"	"	"	Lorenz.
"	3	"	"	Dec. 16,	Gibney.
"	3	Double	Stretch, Weight & Pulley,	"	Whitman.
"	10	"	None.	"	Gibney.
"	7	Single	"	"	Warren.
"	6	"	"	"	Whitman.
"	7	Double	Stretch, Weight & Pulley,	"	Whitman.
Male	4	Single	None.	Jan. 13,	Gibney.
Female	10	"	Stretch, Weight & Pulley,	Jan. 15,	Gibney.
"	11	"	" " "	Jan. 14,	Warren.

UNSUCCESSFUL OPERATIONS.

Female	10	Single	Extension, Weight & Pulley,	Dec. 16,	Whitman.
"	12	"	" " "	Dec. 30,	Gibney.
"	12	Double	" " "	Dec. 30,	Whitman.

In regard to the immediate discomfort of the operation, Dr. Gibney said that no patient in the hospital had been obliged to take a narcotic except on the first night, and then only a small dose. As soon as practicable the cases were fitted with a high shoe, given a chair and allowed to go about the wards.

DR. GIBNEY also presented a case of a rare deformity, a reversion of type, or

"WALRUS FIN" DEFORMITY,

in a child five years old. There was also congenital equinovarus of the left foot and equinovalgus of the right. The case was being kept under observation and the number of bones lacking, the size of those present, and the methods of reducing the deformity were being determined. The scapulæ were rudimentary and the arms were in extreme inward rotation; the child could feed herself with difficulty.

DR. WHITMAN said that the deformity in this case was, in a way, accounted for by the fact that the child was evidently in a constrained position in utero. It was a breech presentation, the extended limbs were flexed on the abdomen, so that its feet were on either side of the head, and the arms were fixed between the

thighs, the hands being pressed into an attitude of abduction. This attitude could be reproduced for many months. It evidently explained the apparent ankylosis at the knee and elbow joints and the failure in muscular development.

DR. V. P. GIBNEY stated that in the case he presented some years ago the hips were dislocated and the arms were in the same position as the case shown. It was also a breech presentation.

DR. SAYRE presented a case somewhat similar to Dr. Gibney's, and resembling those reported by Scudder, of

CONGENITAL DISLOCATION OF THE SHOULDER,

with twisting of the arm and slight flexion of the wrist. The patient, a boy, had been unable to use the left shoulder since birth. The diagnosis was a separation of the epiphysis at the upper end of the humerus which had been unrecognized. The left scapula was also much smaller than its fellow.

DR. FISKE presented a girl of twelve years, seen November 19, 1902, who, after a fall on the back of the wrist with the hand in extreme flexion showed the condition of

ANTERIOR DISLOCATION OF THE CARPUS.

There was no swelling, edema or sensitiveness. With a good deal of force the condition was reduced and the wrist put in plaster of Paris for three weeks, at the end of which time, when the dressing was taken off, the wrist was in exactly the same condition as before reduction was attempted. Dr. Fiske asked for suggestions as to treatment.

DR. WHITMAN presented a case first seen two weeks ago. The patient, a youth eighteen years of age, complained of

DISCOMFORT IN THE SHOULDER.

On examination the right upper arm was found to be nearly two inches shorter than the left. Dr. Whitman thought the patient had probably always had more or less discomfort and that the shortening was due to arthritis or epiphysitis in early life. The x-ray showed downward and inward displacement of the head of the bone, as well as shortening of the shaft.

DR. HOMER GIBNEY presented a case of cured

TUBERCULOUS DISEASE OF THE ANKLE JOINTS

in a child, eight years of age. The treatment was according to his usual method of putting the limb up in plaster and cutting win-

dows in the bandage, through which drainage was carried out, if suppuration occurred. In the case presented no apparatus was being worn; the child was at home and went about as it pleased.

DR. HOMER GIBNEY also presented an x-ray of a case of

DISLOCATION OF THE FOURTH CERVICAL VERTEBRA,

in a man who had fallen eight feet. He complained of pain, the head was tipped forward, the chin turned to the right; the pain was present in both shoulders. The discomfort was great and when seen in the dispensary ten days after the accident, traction was decided upon. He was suspended in the swing for five minutes, the pain was relieved, and he was able to get his arms above his head in six hours. He was suspended a second time for ten minutes. The symptoms were all relieved and he went back to work.

The speaker referred to another case reported some years ago, the patient being now a motorman. In some cases a half jacket was applied and in others the Thomas collar was used.

DISCUSSION OF THE LORENZ CASES.

DR. TAYLOR spoke of 3 cases operated by Dr. Lorenz at the Post Graduate Hospital, two single, one double dislocation. They had done well. The shock was moderate and the pain not severe after the first ten days. There was a great deal of ecchymosis and the children had been slow in learning to walk. A symptom presented in the two unilateral cases, and which he thought he noticed in one of the cases shown by Dr. Gibney, was paralysis of the quadriceps extensor femoris. This was explained, he thought, by forcible stretching of the anterior crural nerve. Dr. Taylor did not think this paralysis was a serious matter, as it would probably be entirely recovered from. He expressed surprise that none of the children operated on a month ago could walk; he did not consider their hobbling about with support or a roller chair as walking.

THE CHAIRMAN thought it impossible to be sure that the paralysis of the quadriceps extensor existed, as in nearly every case the shortening of the ham-string muscles was not fully overcome at the time of operation, and this would prevent voluntary extension of the leg in its new position; moreover, the electrical reactions could not be taken as the limbs were still in plaster.

DR. SAYRE reported on 2 cases operated on by Dr. Lorenz,

both of which were in good condition. The case of double dislocation still showed some ecchymosis, as did the case of single dislocation. The children seemed reasonably comfortable, though the unilateral case was as yet unable to walk without assistance.

DISCUSSION OF THE CASE OF WALRUS FIN DEFORMITY.

DR. TAYLOR referred to a somewhat similar case, seen some years ago, where the elbows were ankylosed in extension and the shoulders very stiff. He thought the etiology of these cases was still obscure, though Dr. Whitman's explanation threw some light upon it.

DR. SAYRE remarked upon the marked contraction of the flexors of the wrist in Dr. Gibney's case. The hand seemed in a condition similar to that seen in many club hands with deficient bones. The internal rotators of the shoulders were also contracted, but the movement at the elbow joint seemed fair. He thought that by constant traction the arms could be brought into a fairly good position.

DR. GIBNEY mentioned that in the reported case, several years ago, he had corrected the feet and had developed a fair sized patella. A hip dislocation, which existed, had also been reduced and he had secured a little motion at the knee. He had tried holding the shoulders back at various times but it seemed to cause great distress. He said he felt at a loss to know just what to do with the upper extremities.

DR. SHAEFFER suggested the daily holding of the limbs in position for a longer or shorter time. He did not think good results would follow forced position, resulting in breaking of the tissues. Not having carefully examined the patient, however, he could not offer any definite suggestions.

DR. DOWD suggested the feasibility of elongating the flexor tendons of the hands by operation.

DR. SAYRE thought that a good deal could be accomplished by elongating the flexor tendons and constantly keeping the shoulder back in position. This could be done on one arm at a time, to avoid, as far as possible, the great discomfort consequent on immobilizing both arms. He spoke of a case under treatment, in which the stretching process was carried out each time as long as the patient could endure it, and a fairly good position was being obtained.

DISCUSSION OF DR. SAYRE'S CASE.

DR. TAYLOR said that the case appeared to be one of obstetric palsy with partial recovery. In such cases modelling of the joints surfaces and subluxation, due to prolonged muscular contractions with vicious fixation of the joint, were occasionally met with. Many of the cases of so-called congenital luxation of the shoulders were probably of this character.

DR. WHITMAN referred to the open operation used by Dr. Phelps in contrast to bloodless reduction, stating that the latter was the operation of choice. He agreed with Dr. Taylor that the case presented by Dr. Sayre was one of obstetric palsy with secondary subluxation of the humerus. He thought true congenital dislocation was extremely rare. In reducing the dislocation, he proceeded much as in the Lorenz operation for dislocation of the hip. He usually put the arm up in the Sayre position for fractured clavicle, but in some cases had fixed it with the upper arm raised to the level of the shoulder, straight from the side. He had operated on 4 cases, of which 2 had disappeared from observation. He expected to overcome the deformity and to restore the power of supination of the hand; he did not look for restoration of motion at the shoulder joint.

THE CHAIRMAN said he had, under ether, several times stretched the contracted pectoral muscles in a similar case, but without satisfactory result.

DR. SAYRE had as yet no results. His cases were still under observation or had disappeared. He considered the free shoulder motion due to the formation of a new glenoid cavity. He thought, as to treatment, that while forcible manipulation was theoretically proper, its results were uncertain.

DISCUSSION OF THE ANTERIOR DISLOCATION OF THE WRIST.

DR. WHITMAN thought this resembled cases of so-called spontaneous subluxation, described by Madelung. The other wrist presented a somewhat similar condition and it might be that the fall had simply exaggerated a preexisting deformity.

DR. V. P. GIBNEY suggested that the case had not been retained in position sufficiently long.

THE CHAIRMAN had seen the same deformity in an adult in both wrists, the result, she said, of a fall on her flexed hands, when eleven years of age.

DR. SAYRE said that the lower end of the radius seemed to him to be abnormally shaped. He thought there was a twist in the lower epiphysis of the radius, as if it had been fractured. The cartilage below the ulna was also dislocated. He observed that the child was probably rickety and that this had a bearing on the treatment.

DR. WALLACE said that he felt pretty sure from examination, that the tendon had slipped over the styloid process and thus retained the position of deformity. He felt confident that, if the tendon were pulled back into place and the wrist fixed long enough, there would be no further trouble.

DISCUSSION OF DR. WHITMAN'S CASE OF SHORT HUMERUS
WITH ARTHRITIS.

DR. TAYLOR remarked that he had seen a number of cases of congenitally short humeri; such cases came under the class of phocomelia. This condition had been found in epileptics, and had been classed as a stigma of degeneration. The case presented, however, did not come under this category, as it appeared to be due to previous joint trouble.

Formaldehyd in Disinfection.—H. W. Hill, of Boston, at the Thirteenth Annual Meeting of the American Public Health Association, read a paper on this subject. His conclusion was that humidity was an important factor in formaldehyd disinfection. An amount of gas which failed to kill in six hours at 42 per cent. humidity killed in twenty to forty minutes at 100 per cent. humidity. Considering the unavoidable leaks and absorption of gas by walls, etc., found in practice, practical disinfection required a rapid discharge of gas and high humidity. The best of the generators tested ran not more than 15 cc. per minute, and the condensed effluent yielded in the first ten minutes only about a 30 per cent. solution, hence generation by boiling in the ordinary way was too slow. Spraying was somewhat objectionable from the wetting down of the contents of the room. Atomization by steam current under fifteen pounds pressure yielded from six to eight times as rapid a flow of full strength, with no polymerizing, and produced a high humidity.—*Boston Medical and Surgical Journal*.

Current Literature.

PATHOLOGY.

Bing, Robert : On Congenital Muscle Defects. (*Virchow's Archiv. für Path. Anat. und Phys.* Bd. 170, Hft. 2.)

Von Ziemssen, in 1857, first gave attention to these muscle defects, but only because in 2 such cases he found opportunity to determine by electrical tests the much disputed question of the action of the intercostal muscles.

Ebstein, in 1869, employed a case of partial defect of the pectoralis to determine the action of the remaining clavicular portion. Later these defects attracted the attention of military surgeons, because of their bearing upon the question of fitness for military service. In 1886, Stintzing sought to distinguish congenital muscle defects from those acquired in the course of spinal or myopathic progressive muscular atrophy. In 1889 Erb made the first microscopical examination in a case of almost complete trapezius defect, and raised the question whether it was not an example of a rudimentary, stationary form of progressive muscular dystrophy.

In 1891, Damsch, and in 1900, Schlesinger reported findings with which to support Erb's suggestion.

Bing gives the results of autopsy and microscopical examination in a man, who, during life, had shown absence of all the right pectoralis major except the clavicular portion.

In the right pectoralis major there was noted a small average calibre of the fibres and an increase of the muscle nuclei. The right pectoralis minor was devoid of muscle tissue and consisted wholly of yellowish, fat-like tissue. The left pectoral muscles showed increase of muscle nuclei, moderate increase of interstitial connective tissue, and in parts increase of fatty tissue. In the muscles of the left shoulder girdle there were many evidences of muscular degeneration. After a careful review of the cases of Erb, Damsch and Schlesinger, Bing can find no general resemblance between their findings and his own. He then reviews exhaustively the literature of the subject, which tends to show that these congenital defects are most often found in muscles which are the seats of election in muscular dystrophies.

On the other hand, these muscle defects have been many times observed in association with other developmental defects, such as

syndactylism, defects in the thorax, anomalies of the vertebræ, shortening or atrophy on the affected side, and especially trophic disturbances in the integument covering the affected muscles. After carefully reviewing all the data, Bing is unable to reach a decision between the two views, one considering these defects as the results of a progressive muscular dystrophy which had reached a stationary stage, the other regarding them as dependent upon failure of development. The article is very exhaustive and can be but very imperfectly represented in abstract.

Schauffler, W. G.: A New Stain for Diphtheria Bacilli.
(*Medical Record.* December 6, 1902, p. 895.)

The new stain is a development from the process devised by Piorkowski of Berlin. The latter's rules were as follows:

(1) Prepare cover-glass smear. (2) Stain with Löffler's methylene blue, slightly warmed, one or two minutes. (3) Decolorize very rapidly (one second) with 3 per cent. HCl—alcohol. (4) Rinse in water. (5) Counterstain with $\frac{1}{2}$ per cent. aqueous solution of eosin, ten seconds. (6) Examine in Canada balsam, or with clearer results in water.

This method stains the bodies of the bacilli a pale reddish color, while at each pole, and sometimes in the middle of the bodies, appear the blue-black polar bodies.

Schauffler's stain is made up as follows:

Filtered solution Löffler's methylene blue.....	10.0 c.c.
Filtered solution pyronin (Grübler's).....	1.5 c.c.
Pyronin.....	0.5 grain.
Aquæ dest.....	10.0 c.c.
Three per cent. HCl—alcohol.....	0.5 c.c.
Alcohol absolute....	97.0 c.c.
HCl (25 per cent.).....	3.0 c.c.

To prepare specimen: (1) Make cover-glass smear and fix by passing through a frame three or four times. (2) Drop on a fixed smear, enough to cover it and let it stand one minute. (3) Wash thoroughly in running water. (4) Mount in Canada balsam and examine under 1-12 oil immersion lens.

This procedure will show the bodies of the bacilli stained blue, while the poles are a bright ruby red.

Schauffler found that cultures on plain agar-agar, kept at 37° C., showed the characteristic staining after from seventeen hours to twenty-one days, also that smears made from fresh diphtheritic

membranes showed the characteristic staining, although not so clearly as those from cultures. The pseudodiphtheria bacilli are much smaller and take only the blue color.

The advantages of the method lie in the use of but one solution without heat, and in the fact that the characteristic staining is obtained both in fresh smears and those made from cultures.

MEDICINE.

Follet and Sacquépée: Intracranial Angioplasic Sarcoma. (*Arch. de Méd. des Enf.* November, 1902, p. 674.)

The nine-year-old girl had an alcoholic and hysterical mother, and was very backward for her age. She developed nervous crises characterized by convulsions with loss of consciousness, intermittent vomiting and insatiable thirst. She was very quarrelsome, considering herself the subject of imaginary wrongs by her companions. The thirst was such that she drank urine, dirty water and any fluid obtainable. Vomiting and diarrhea became uncontrollable, and death resulted in three months. Headache had not been complained of. At the autopsy the thoracic and abdominal viscera were found to be normal. A tumor as large as a small nut lay beneath the pituitary body, loosely connected with the cerebrum. Microscopic examination showed it to be an angioplasic sarcoma.

The interesting features of the case are: the rarity of this variety of intracranial tumor; the possible influence of hereditary degeneration on its occurrence and development; the gastrointestinal intolerance leading to death by inanition, the vomiting being, probably, largely of the neuropathic, incoercible kind; and the great difficulty of diagnosis.

De Oliveira, Olinto: A Case of Grippal Pneumonia. (*Annales de Méd. et Chir. Infant.* November 1, 1902, p. 721.)

A girl of thirteen months was brought to the clinic with a history of having been ill for eight days with fever, coryza, cough, much prostration and depression. On examination the child was very pale, slightly cyanosed and dyspneic; respiration was short, frequent and sighing and she had a hard, quick and continuous cough. The temperature was 37.6 C. The physical signs

were those of a fairly extensive effusion at the left base; diminished fremitus, flatness at the base, diminished voice sounds and ægophony at the apex of the scapula, and a very few distant crepitant râles. The right lung showed signs of compensatory action. At no time was the resonance over Traube's space affected and the cardiac apex beat could not be located. The diagnosis of an effusion at the left base was made, but exploratory punctures were negative. The writer calls attention to the following points:

(1) The persistence of Traube's space which ordinarily is obliterated by a comparatively small amount of fluid. (2) The failure to locate the apex beat: in effusions large enough to change the position of the heart, the apex beat is pushed forward and to the right and can be felt and heard easily; there is also dullness over the heart on the right side in its misplaced position. (3) Negative exploratory puncture. After carefully excluding the ordinary varieties of pneumonia and pulmonary congestion, the case must be diagnosed as one of pneumonic consolidation caused by a grippal infection. The child improved under treatment.

Peters, Lindsay: Malarial Fever in Infancy, Probably Maternal in Origin. (*Johns Hopkins Hospital Bulletin.* June, 1902.)

Peters first brings out the conflict between authorities as to the possibility of the malarial organism being transmitted directly from the mother to the fetus in utero. Laveran is said to have held such transmission as proven, Machiafava and Bignami hold the opposite view. Peters reports the following case:—The mother, a German woman, had had repeated attacks of malarial fever. She had a characteristic chill immediately before the birth of the child which became the subject of Peters' observations. Examination of the mother's blood showed typical, half-grown tertian malarial organisms. The child was perfectly well at birth. Examinations of fresh blood specimens from the ear on the second and third days failed to show malarial organisms. On the fiftieth day after the confinement the child was found to have a very severe anemia with a marked enlargement of the spleen. After searching two fresh, unstained, cover-glass preparations of the blood, three malarial parasites of the tertian type were found—one small, extracellular, pigmented form, and two half-grown intracellular forms, containing light-brown, dancing pigment granules.

From this time on the infant was kept under observation and treated with quinin grs. ii t.i.d. There were no chills and fever and the anemia and other symptoms disappeared in a few weeks.

There was no history of chills in the infant, but the mother said that from the second week it "got cold and had fevers" at times.

From the history and the high grade of anemia, Peters concludes that the infection was not a recent one, and that therefore the infant must have acquired the disease either in utero or soon after birth.

He then proceeds to exclude the latter possibility on the grounds that the house was not in a malarial neighborhood, that there were no mosquitoes to be found in or about it, nor any information as to their presence during the weeks between the birth of the child and the attack of malaria. Excluding this method of infection Peters, although admitting the possibility of error, concludes in favor of infection in utero.

Cruchet: Tuberculous Meningitis of the Bulb with Remission for Two Years Simulating Cure. (*La Presse Medicale*. November 19, 1902.)

Cruchet of Bordeaux reports the observation of a boy of twelve years, who, after having for one and one-half months had all the classic symptoms of a tuberculous meningitis, appeared completely cured for two years. He then had a relapse which, at the end of six weeks, was again followed by return to normal, and he seemed again cured, but died suddenly of asphyxia of bulbar origin with signs exactly analogous to those provoked by physiologists in Flouren's experiment. The autopsy showed a considerable dissemination of tuberculous nodules, at the periphery of the bulb, distributed particularly along the vertebral arteries, the basilar and the posterior cerebrals, these latter being almost completely obliterated near their origin.

Lang, S.: On Glycosuria as the Initial Symptom of Atrophic Kidney. (*Die Med. Woche*. November 17, 1902, p. 479.)

Three cases were observed, two adults and one boy eleven years old, in which glycosuria appeared as a valuable diagnostic sign of beginning atrophic kidney at a time when all other symptoms were lacking. The boy had been well since an attack of

scarlet fever three years before, but had complained of headache and loss of appetite for some weeks. There were no abnormal heart sounds. The urine contained a trace of sugar, but no albumin and no casts. Eight months later there were hyaline casts and albumin, but no sugar. The cardiac area was increased and the second aortic sound accentuated. The glycosuria was but slightly influenced, if at all, by the ingestion of carbohydrates.

The question arises as to whether the same causes which, on longer duration, produce atrophic nephritis, may not cause a disturbance of the equilibrium of the sugar regulating centres first.

Grases, Antonio: Rickets of Prolonged Duration; Extensive and Varied Osseous Deformities; Recovery with Persistence of Certain Osseous Lesions. (*La Med. de los Niños.* Vol. iii., No. 55.)

The four-year-old patient exhibited a quadrangular head flattened from side to side. The incisors were all decayed, while the molars were in process of decay. The thorax was small in proportion to the abdomen, was prominent in front and showed a median sulcus. Beaded ribs were present. The spine was normal. The bones of the upper extremities showed exaggeration of the natural curves and twists, and a rachitic bracelet. A high degree of deformity was observed in the bones of the lower extremities, and the weight of the body could not be supported, so that locomotion was impossible. In addition to marked bowing a deformity of the right tibia suggested a badly united fracture. Considerable improvement was obtained by internal medication directed chiefly to the digestive tract (calomel, salines, pepsin, hydrochloric acid, etc.)

Cima, Francesco: Purulent Pleurisy in a Child Aged Two Months. (*La Pediatria.* Vol. x., No. 9.)

For about twenty days the baby, who was on the breast, had not appeared well. He was restless, nursed irregularly, regurgitated frequently and passed "dyspeptic" feces. Some feverishness was also noted by the mother. Cough and slight cyanosis appeared finally and medical aid was sought.

Upon admission to the clinic there was a cyanotic tint upon the visible mucosæ. Temperature afebrile, pulse and respiration slightly augmented. Percussion over the right side showed dullness, and the vesicular murmur and vocal fremitus were absent.

Exploratory puncture in the seventh intercostal space brought away pus and confirmed the diagnosis of empyema. On the following day the patient coughed and vomited pus. A subsequent puncture gave a negative result, recovery occurred ultimately, without sequelae. The pathogenic agent appeared to be the staphylococcus pyogenes.

Painter, C. F.: Infantile Paralysis; An Epidemic of Thirty-eight Cases. (*Boston Medical and Surgical Journal.* December 11, 1902, p. 632.)

Ten epidemics of anterior poliomyelitis are recorded in literature. The epidemic which Painter reports occurred in the city of Gloucester. No relation between the cases of paralysis and the milk, meat, or ice supply could be established. Of the cases reported, there were twenty-three males and nine females. The youngest patient was thirteen months and the oldest ten years. Twenty-one cases were three years or younger; 8 cases two years or younger; and 7 cases four years or more. No case observed got entirely well, and only 1 died; this one was not included in the 38 reported.

The writer finds it impossible to draw any definite conclusion as to the special etiological factor in the epidemic. All the local conditions were investigated but without result. The great similarity in the symptom complex as seen through all the cases, and their resemblance to symptoms long recognized as indicative of infections, in the writer's opinion, afford as good evidence of the infectiousness of anterior poliomyelitis, as we have in scarlet fever.

Hamilton, W. F.: A Case of Purpura with Recurrent Attacks. (*Montreal Medical Journal.* November, 1902, p. 875.)

The patient was a girl, eleven years of age. Her family history was not known. Her present trouble began in 1896 with attacks, in which she would be pale and listless for a few days, decline to take her food heartily and complain of headache. At such times purpuric areas of varying size would appear over the limbs and body. On one occasion she had a severe epistaxis. In 1899 she had measles with a purpuric eruption.

In November, 1899, after two days of pain over the stomach and abdomen she had a hemorrhage from the bowels, and for some days thereafter passed blood-stained stools. At the same time petechiae covered the body, arms, and especially the legs.

The gums showed signs of hemorrhage and she had a bronchitis with bloody expectoration.

In March, 1900, she had an eruption of petechiæ associated with urticaria-like nodes. The petechiæ continued to appear from time to time and were apparent in September, 1902.

The points of most interest in the case are summed up as follows:—(1) There has always been a tendency for a slight bruise to be followed by marks. (2) The eruption has been purpuric and macular and, for the most part, petechial. Annular forms have been seen as well as nodular forms. (3) There have been skin and mucous membrane hemorrhages—from gums, buccal mucous membrane, bladder and bowels. (4) When she had measles, hemorrhagic eruption was present. (5) Bronchitis has been several times observed. (6) Blood cultures, taken on three occasions, were negative, while the hemoglobin, in 1900, was 75 per cent. (7) Recurrence is a marked feature of the case. (8) There have been no joint symptoms. (9) The heart shows no signs of disease.

Neumann, L.: The Viscosity of Sputum and Its Relation to Cough, Especially to Pertussis. (*Arch. für Kinderhk.* Vol. xxxv., p. 1. 1902.)

From observations made on 7 cases of pertussis and 2 of recurring bronchitis and pharyngitis with marked paroxysmal cough, it was impossible to find any constant relation between the quantity of the sputum and its degree of viscosity, nor any parallel between the viscosity of the expectoration and the severity of the paroxysms of coughing. In 3 cases which were under observation for a longer time, the sputum became decidedly more viscid as the paroxysms decreased in number and intensity. Frequently a more viscid sputum was expectorated during milder attacks than during severe ones. This is important therapeutically, and raises the question as to whether the time-honored custom of giving expectorants with the view of liquefying the bronchial secretion can have any effect upon the course of the pertussis.

Jacobi, A.: The Causes of Epilepsy in the Young. (*American Medicine.* December 13, 1902, p. 927.)

The predisposition to epilepsy may be inherited, or acquired during intrauterine or extrauterine life. Intoxications of the parents by morphin, lead, or alcohol, their infection by syphilis or tuberculosis, their constitutional anemia, gout, or diabetes, or

a local degeneration of either testes or ovaries may not cause, in the offspring, the identical disease or anomaly, but only a general debility of the tissues, or their enervation. Epilepsy appears to be more directly inherited than any other cerebral disorder. In Echeverria's 533 cases 29.72 per cent. showed a direct inheritance from an epileptic parent; Gowers gave a percentage of 35; according to Spratling 66 per cent. of epileptic children have epileptic parents.

The actual or the proximate cause of generalized epilepsy is in the cerebral cortex; its origin in anatomic lesions of different localities. Thus epilepsy may be cerebral, it may be the result of persistently abnormal circulation, or it may be of reflex nature. All sorts of cerebral tumors, solid or cystic; the results of previous encephalitis or meningitis, from insolation, otitis, nasal infection, or otherwise, disseminated sclerosis of different territories; "vasculitis" of the pia mater; the results of hematomata or thromboses; arrests of cerebral development or heterotopy of gray substance; premature ossification of one, some, or all of the cranial sutures and fontanels; even the narrowness of the occipital foramen; cerebral exhaustion from masturbation or premature venery; local anemia of unknown origin; diseases of the heart with secondary venous obstruction; congestion from other causes; the influence of prolonged use of alcohol or ergot; the sluggish brain circulation attending constipation and the general toxemia of intestinal autoinfection; external irritation, such as peripheral tumors, cicatrices, foreign bodies, and the reflex excitement produced by carious teeth; Schneiderian hypertrophy, and nasal and nasopharyngeal growths; vesical and renal calculi; helminthes, from taenia to oxyuris; in older children delayed menstruation, are so many different causes for epilepsy. It is, therefore, only the most painstaking examination of all the organs and the whole surface of the body that gives a promise of finding the cause of the disease, as well as the indications for rational causal treatment. Intrauterine influences, both inflammations and intoxications, are certainly powerful as occasional causes of epilepsy. Hereditary syphilis is considered a frequent cause of epilepsy, both Jacksonian and universal. Among other causes falling in this class are hypertrophy of the brain, premature ossification of the cranium, and spurious meningocele.

Asphyxia of the newly-born from any cause plays a very important part in the production of epilepsy. Intracranial hemor-

rhages, due to asphyxia or any other cause, are frequent and important. Infantile convulsions are also likely to be attended with serious results, whatever their etiology. With relation to the influence of dentition, Jacobi says:—When a convulsion, the first appearance of, or rather the cause of consecutive epilepsy or idiocy, is attributed to dentition, the history of the case as submitted to us is incomplete, or our own diagnosis is at fault. He emphasizes the importance of nephritis and rachitis in the production of convulsions and on the other hand says of phimosis:—I can say, however, that I never in my life saw such a case that I could attribute to phimosis, and never a recovery from paralysis, idiocy, or epilepsy, due to circumcision.

Salazar, Andrés: Hodgkin's Disease in an Imbecile; Improvement. (*La Med. de los Niños.* Vol. iii., No. 55.)

The patient, a girl nine years old, was in a state of utmost filth when first admitted. Masses of enlarged lymph nodes were seen in the cervical and axillary regions. There was a leucorrheal discharge in which the gonococcus was found. The pallor was marked and the blood count that of Hodgkin's disease. There were no stigmata of hysteria. Mentally indocility and incoherence were in evidence. Impulsiveness seemed to be absent. According to the family history *petit mal* had developed at the age of five and the glandular malady a year later.

The treatment consisted of Fowler's solution and elixir of hemoglobin inwardly, and injection of iodoform into the tumors. Considerable improvement in the state of the blood was thereby obtained, while the enlarged lymph nodes showed some reduction in size. The patient left the clinic prematurely.

Taconnet: Congenital Variola. (*L'Écho Méd. du Nord.* December 14, 1902.)

The mother had not been vaccinated since infancy, and had a mild attack of variola at the end of her pregnancy, the child being born two days after the initial symptoms appeared, and two days before the eruption. The infant was not vaccinated. On the eighth day she developed variola, the eruption becoming confluent and death occurring eight days later. Evidently the infection of the child and part of the incubation stage had occurred in utero.

The case is of interest for its rarity, and for the fact that the benign variola of the mother was transmitted to the infant as a very intense infection.

SURGERY.

Young, J. K.: Operative Treatment of Hip-Joint Disease.
(*American Medicine*. October 25, 1902, p. 661.)

The writer first emphasizes the value of the conservative treatment and the fact that where it is carried out under favorable conditions, operation is very rarely required. When they are required, operative measures should be thorough and definite, and should be carried out as quickly as is consistent with safety. He classifies and speaks of the operative measures to be considered, as follows:—

(1) Measures for the relief of deformity.

(a) Multiple myotomy.—When the ankylosis is of the false variety, this measure is frequently all that is required, especially if combined with:

(b) Forcible straightening. This, of itself, is not efficient and great injury may result, if tenotomies have not been previously performed.

(c) Osteotomy gives very satisfactory results in true or osseous ankylosis, and the necessity for it can frequently be determined by the skiagraph. Of the several different methods, Young prefers the Gant or subtrochanteric.

(2) Measures required in the treatment of arthritis.

(a) Aspiration has not been found satisfactory, on account of the thickness of the pus and the presence of necrotic tissue. Neither is the injection of iodoform after aspiration satisfactory in hip-joint disease.

(b) Incision for the evacuation of pus and the examination of the joint contents. Permission should always be had to go further, if it should be found necessary after opening the joint.

(c) Erasion of the joint, after the method of Willard, is favored in all cases where the disease is not extensive, and especially in children. Erasion is the preferable operation in children, even when the disease is quite extensive; the results are more satisfactory, and it does away with the short leg which is frequently met after excision.

(d) Excision, whether partial or formal, is favored when the disease is extensive, particularly in adults. Excision should only be performed in carefully selected cases and should not be employed as a routine measure. The indications for excision are long-continued profuse suppuration and albuminuria.

(e) Amputation is favored only in very rare instances. This

procedure has been supplanted by excision. If the disease has extended down the shaft of the femur beyond its upper third and the disease of the ilium is not extensive, amputation may be performed as a primary operation, or may be used as a last resort after excision has failed.

Odell, R.: A Case of Meningomyelocele; Operation on an Infant Aged Thirteen Days; Recovery. (*Lancet.* August 23, 1902, p. 508.)

A female child, age thirteen days, was admitted to the Hertford Infirmary, May 17, 1902, with a central swelling in the lower lumbar region of the spinal column; it was the size of an egg, had existed since birth, and was gradually increasing in size. The skin over it was bluish red and was commencing to slough centrally. It was nonpulsatile; the base of the tumor was surrounded by a ring of bone. There was fluctuation and pressure upon it caused some diminution, but did not affect the condition of the fontanels. There was some incontinence of urine and feces; the anus was patulous and the mucous membrane slightly protruded. There were no evident loss of power in the legs and no trophic changes.

The operation was done without anesthesia. An incision two and one-half inches long was made a little to left of median line. The cord was found adherent to the sac wall and was dissected off and returned into the spinal canal. The flaps of the membranes were brought together over the cord and joined by silk. The sloughing skin was excised and the remainder sutured. A firm aseptic pad was used as a dressing. About an ounce of cerebrospinal fluid was lost during the operation. Collapse during the evening was met by saline injections into the flank. The child made a good recovery and on July 26th there was a perfectly sound cicatrix with no recurrence of the tumor.

Kellock, T. H.: A Case of Foreign Body (Haricot Bean) Impacted in the Left Bronchus; Removal by Operation. (*Lancet.* November 15, 1902, p. 1322.)

The patient, a girl, aged one year and eleven months, was admitted to the Hospital for Sick Children on the evening of August 7th with the history that on the preceding evening she had swallowed some dry uncooked haricot beans. Immediately afterward she had a bad attack of dyspnea lasting twenty minutes. This the mother relieved by "smacking the child's back." The child

remained comfortable until 3 P.M. on the following day (the 8th) when she had another attack of dyspnea and pain, which subsided after the administration of an emetic.

On admission to hospital, the child was free from distress, but there were deficient expansion, impaired resonance, feeble and distant breath sounds, and a few moist râles over the whole left lung; the right side was normal. The following day the same signs were found, and on crying the child became distressed and the face dusky in color.

On the 9th, under chloroform, Kellock performed a low tracheotomy. On passing a probe into the left bronchus, some rather soft foreign body was touched at a distance of three inches from the lowest part of the tracheal wound. Efforts to dislodge this with the probe or to grasp it with forceps failing, a long piece of silver wire was then bent and twisted so as to leave a slightly turned-up loop at the end, and after some manipulation the bean was caught and removed with this instrument.

The bean was of the ordinary shape, of soft consistence on the surface and measured five eighths of an inch by three eighths. On the following day the physical signs were much as before, but the next day the differences between the two sides were very slight and the lung promptly returned to normal condition. The wound in the neck healed by primary union and the patient was discharged on the 18th. Kellock comments on the comparatively slight discomfort of the child, despite the fact that practically the whole left lung had been suddenly rendered functionless.

Bradford, E. H.: Congenital Dislocation of the Hip; The Causes of Relapse. (*Annals of Gynecology and Pediatrics*. November, 1902, p. 641.)

Relapses after reduction of congenital dislocations of the hip may occur even to the most skilful surgeon. If the reduction is incomplete, if the head is not well passed in or through the capsular neck, a relapse naturally takes place, and it is also true that a relapse follows if the contracted short tissues, which will check the free movement of the limb and produce dislocation on locomotion, remain undivided or are only insufficiently stretched. The relapse may, however, occur after the head has been well placed in an acetabulum of proper depth. The explanation is found in the twist in the neck and shaft of the femur. That a twist in the neck and shaft of the femur exists in many

cases of congenital dislocation has been noticed by Nichols and Hoffa. Bradford believes it to be common, this judgment being a result of cases which have come under his care during the past year, all of which presented this distortion as shown by x-ray examination and by palpation. The existence of this twist is frequently overlooked in x-ray examination, because attention is not given to the position of the feet. If, in taking the skiagraph, the foot is not turned in sufficiently, the limb is not inverted enough, the head projects forward into the radiograph and is lost in the shadow of the neck of the trochanter.

The importance of a twist in the neck of the femur has been carefully estimated by Schede, who has employed osteotomy of the shaft as a corrective. Instead of osteotomy, the writer has used the Gigli saw, which is passed close to the femur at about its middle, or in stouter children just above the condyles. The bone is sawed nearly through, then the saw is removed and the bone broken.

There may be other causes for relapse, which are included in the following summary:—

(1) The folding of the capsule in the acetabulum before the reduced head.

(2) Insufficient stretching of the soft parts, especially in the lower and inner portion of the capsule.

(3) Relaxed condition of the capsule and muscles, including faulty attachment of the psoas.

(4) Twist in the neck of the femur.

When these conditions are borne in mind by the surgeon and corrected, as they can be, it may be expected that relapses after reduction of the congenitally dislocated head of the femur will be rare.

Garrow, A. E.: Congenital Dislocation of the Hip. With Notes of Three Cases. (*Montreal Medical Journal.* November, 1902, p. 849.)

The writer's experience has been chiefly with operative procedure, employing an anterior oblique incision, opening the capsule and freeing its outer extremity both on anterior and posterior aspects of the neck, and dividing all structures attached to the trochanter minor. If traction then failed to reduce, tenotomy of any unyielding structures was done. As the result of his experience, he emphasizes the following points:—

(1) Preliminary stretching and tenotomy. (2) Free separa-

tion of the femoral attachments of the capsule. (3) Thorough separation of the structures attached to the lesser trochanter. (4) Drainage. (5) Proper fixation by a suitable bandage. (6) Prolonged fixation until structures have adapted themselves to the parts. (7) Exercise and gymnastics.

HYGIENE AND THERAPEUTICS.

Guinon and Coffin: A Case of Barlow's Disease. (*La Presse Med.* November 1, 1902, p. 1054.)

A baby, eleven months old, appeared to have an attack of enteritis with meningeal symptoms. When first seen the child was lifeless, and suffered from the slightest contact or movement. The presence of bleeding gums, edema over the tibia, and a subperiosteal effusion confirmed the diagnosis of infantile scorbutus. This child had been fed on nectar, sterilized milk and on porridge made with the same milk. Guinon points out the necessity of mixing raw milk with the artificially prepared variety to avoid accidents of this nature. The child was subsequently fed on raw milk, potato pap, lemon juice and grapes; in four days it was cured and had gained 360 grams.

Buchanan, Leslie: The Ophthalmia of Newly Born Children. (*The Scottish Medical and Surgical Journal.* November, 1902, p. 419.)

The reports of the Glasgow Eye Infirmary show that, while the total number of cases of ophthalmia in the newly-born is larger than it was thirty years ago, the proportion of such cases to the total number of new cases is much smaller. The treatment of these cases is of two kinds, local and general. Local treatment consists of careful and oft-repeated washing out of the eyes with an antiseptic solution, such as bichloride of mercury 1-8000, boracic acid (saturated), permanganate of potassium 1-2000, or any others. The mercurial lotion is probably the best, and is often easily obtainable. In addition to this the regular installation of one or two drops of protargol (10 per cent. or 20 per cent.), or of the nitrate of silver (four grains to the ounce) is of great benefit in many cases. After washing out the eyes and putting in protargol, it is useful to apply some ointment to the lids to prevent adhesion from dessication of the discharge.

The general treatment is of importance and consists entirely

in attending to the condition of the mouth and the digestive functions. Attention to the nourishment will often produce a notable improvement in the state of the eyes as well as in the general state of the little patient.

The preventive treatment lies in the satisfactory cleansing of the maternal parts before or even during labor by flushing with warm antiseptic solutions, and the installation of a $\frac{1}{2}$ per cent. solution of nitrate of silver into the infant's eyes, as advised by Cr  d  . The writer thinks that the reduction in the number of cases of ophthalmia in the newly-born may be due to the systematic use of the latter procedure.

Hand, Alfred, Jr.: The Home Modification of Milk for Infant Feeding. (*American Medicine.* December 20, 1902, p. 965.)

The author makes several definite points, as follows:—

(1) The first thing is to consider each case by itself and get a careful personal history, especially as to the previous feeding.

(2) Obtain a good, clean milk.

(3) Direct the preparation of the food according to the percentages of fat, proteid, and sugar, that is, think in percentages.

(4) If a child does not show a weekly gain in weight after being put on a mixture directed by our best skill, before making a change, examine the preparation to see if the child is getting what has been ordered.

(5) Barley water, as a diluent, is advised, except in cases of constipation, when oatmeal water may be substituted.

Gay, F. P.: Vaccination and Serum Therapy Against the Bacillus of Dysentery. (*Univ. of Penn. Med. Bull.* Vol. xv., No. 9, 1902, p. 307.)

The paper relates entirely to experimental vaccination and serum therapy against infection with the bacillus of dysentery.

There is no longer any doubt as to the existence of a form of dysentery, which is specific in the full sense of the term. The particular bacillus, now demonstrated to be the cause of the disease, which was isolated by Shiga in Japan, chiefly through the researches of Flexner and his assistants has been shown to be the cause of acute and subacute dysentery in the tropics and of the sporadic and institutional epidemic disease in temperate climates. Confirmatory evidence in regard to its etiological role has come from Germany and Holland; and within the past few weeks

Duval and Bassett have established the causal relation between the bacillus and the summer diarrheas of infants. In carrying out his work, Gay used several strains of bacilli from different sources. These included the bacillus isolated by Shiga in Japan, that isolated by Flexner in the Philippines, another from Kruse in Germany, and one from Duval obtained in New Haven. These strains were used:—(a) For the production of vaccines, and (b) for the immunization of the horse. Since the organism tends to lose its virulence for guinea-pigs, when cultivated continuously outside the body, it was necessary to keep up its activity by regular passage through the bodies of these animals.

As the toxin of the dysentery bacillus is probably purely intracellular, immunity can only be secured by inoculating with cultures of the organism. Suspensions of the bacilli in salt solution are treated with 0.05 per cent. of tricoresol, which suffices to kill the bacilli in two hours; they are then considered as vaccines and used for inoculation either of the guinea-pig or horse.

Fatal doses of the dysentery vaccines cause death, when inoculated subcutaneously into guinea-pigs, in from eighteen hours to ten days. Animals receiving a nonfatal dose of the vaccines lose weight persistently for from seven to ten days and then gradually return to normal within three weeks. Guinea-pigs which have received one or more subcutaneous injections of less than the lethal dose of dysentery vaccines show a marked protection against multiple intraperitoneal lethal doses of the living organism. While protection afforded by a given vaccine against its own strain of *B. dysenteriae* is practically absolute, it is found that rarely under similar conditions the protection against other strains of the same organism may be marked by failure. This suggests the advisability of combining several strains of the bacillus in the preparation of the vaccines.

His conclusions are as follows:—

(1) The bacillus of Shiga is the cause of acute and other forms of dysentery in tropical and temperate climates, and, probably, of a part of the summer diarrheas prevailing in warm climates among infants.

(2) Guinea-pigs are susceptible to experimental infection with *B. dysenteriae*, and react to inoculation in a characteristic manner.

(3) The bacillus of dysentery, cultivated outside of the body, quickly suffers a reduction in virulence for guinea-pigs; but the

virulence can be readily increased by successive passages through the bodies of these animals.

(4) The passage of the *B. dysenteriae* through guinea-pigs permits of the establishment of a uniform grade or degree of virulence in the organism, irrespective of its source, which adapts it for the production of vaccines of quite uniform activity.

(5) The vaccines consist of suspensions of dysentery bacilli, killed by addition of tricoresol, the activity of which undergoes an increase, for a time at least, that is coincident with disintegrative changes taking place in the microorganisms.

(6) This vaccine suffices to protect guinea-pigs from a succeeding multiple fatal dose of living dysentery bacilli, and to produce in the horse an active immune serum.

(7) The immune serum of the horse exhibits marked protective properties in preventing fatal infection with *B. dysenteriae* or intoxication with its vaccine in guinea-pigs.

(8) While the several dysentery bacilli used in this investigation belong to one definite species, minor distinctions were present among them. The most marked differences noted were the weaker virulence of the "Kruse" strain as compared with the other strains of the bacilli, and the slightly reduced activity both of vaccine and immune serum when directed against strains of organisms other than that from which they were prepared.

(9) The bacillus of dysentery resists bacteriolysis by blood serum to a greater extent than some others of the colon-typhoid group of bacilli.

(10) A useful serum therapy of bacillary dysentery and of certain forms of the summer diarrheas of infants is rendered highly promising.

Preisich and Schütz: Tubercular Infection in Children and Its Prevention. (*Zeitschr. f. Tuberc. und Heilstätt.* 1902. Bd. iii., Hft. 6, p. 470.)

The authors quote the dictum of Brouardel and Grancher:—"If tuberculosis is curable, it is still more easily avoidable." The best treatment of tuberculosis is, and will always be, prophylaxis. To prevent tuberculosis we must understand the nature and path of the infection. The frequency of tuberculosis among children is presented in the following varied figures.

Bollinger, of Munich, found tuberculosis in 43.6 per cent. of 500 children; in 13.6 per cent. the tuberculosis was latent, in 30 per cent. it was the cause of death. Briault and Fraenkel among

83 dying of other disease, found tuberculosis in 67, that is, in $\frac{4}{5}$ of the cases there was "latent tuberculosis." Comby in the sections of 211 cases, met with tuberculosis in 13.27 per cent. V. Torday shows that in ten years' material at the Stephanie Hospital among the ambulant sick, tuberculosis was found in 8 to 9.4 per cent.; among the patients in the hospital in 15 per cent., and in the autopsy-material in 40 per cent., the autopsies being especially frequent on children from 1 to 2 years of age.

In 72 children under 3 months old, Comby, at autopsy, found no tuberculosis; in 13 from 3 to 6 months old 4 (17.54 per cent.) were tuberculous, of 57 from 6 to 12 months 13 (22.8 per cent.), and of 18 from 1 to 2 years old 7 (38 per cent.) were tuberculous.

Feer asserts that the mortality from tuberculosis is highest at the end of the first and during the second year. According to Küss the mortality from tuberculosis in the first 3 months of life is *nil*, from that time to the end of the first year there is a gradual increase, with a rapid rise in the second year.

Körösy in his mortality statistics from Buda-Pesth for the years 1886-95, says that the mortality from tuberculosis in the period from birth up to five years is on the average two and a half times that of the period from the fifth to fifteenth years.

Hereditary tuberculosis is exceptionally rare. Tuberculosis is almost always an acquired disease. The suckling up to the age of nine months or a year, until he is capable of getting about, is exposed to danger almost wholly from the person who cares for him. If that person be tuberculous, the danger to the infant is clear. The writers call attention to many evil practices common among the lower classes, such as smearing the nipple with sputum, tasting the food or blowing upon it.

During the second year the child is most in danger from dust inhaled, or dirt which has got on the fingers, hands, or playthings, and so been carried to the mouth. Naturally tubercle bacilli, if present in the dust or dirt, are introduced with it.

To show the positive grounds of this danger, the writers made investigations of dirt under the nails of sixty-six children between six months and two years of age, met with in the outdoor service of the Stephanie Children's Hospital. In fourteen (21.2 per cent.) tubercle bacilli were found. The children were not selected and came from homes in which, so far as known, there had been no cases of tuberculosis.

In children from the second to the sixth year, the greatest dan-

ger of infection, especially in winter, lies in the house-dirt. At this time the possibility of infection by food, milk and butter, must be considered. The writers share the views of Guthrie and Woodhead as to the importance of infection from these sources and also as to the fact that tuberculosis of the bronchial glands is not an evidence of infection by inhalation.

After the fifth or sixth year the danger of infection from the house-dirt diminishes. The site and manner of infection undergo a change. The diminution is more notable in the case of boys than of girls. According to Prussian statistics the mortality of girls from ten to fifteen years of age is double that of boys of the same age.

The manner and means of fighting tuberculosis in children are indicated in the consideration of the routes of infection. No tuberculous mother should suckle her child, but the children of tuberculous parents should be entrusted to the care of persons free from the disease. The association of young children with the tuberculous in rooms or houses should be avoided. All places in which consumptives have lived should be disinfected, and also the clothing of the patients. Children of suitable age should spend as much time as possible in the open air. School-children should be sent to the country in vacation time. Hospitals for the advanced consumptives and for children with suppurating bone or lymph node tuberculosis are an essential part of the work of preventing infection. Care must be taken to avoid the possibility of infection by food. The main point in the fight against tuberculosis is the protection of children against infection.

Thiercelin: Five Cases of Barlow's Disease. (*La Press Med.* November 1, 1902, p. 1054.)

Five cases of Barlow's disease occurring in children aged 8 months, 17 months, 27 months, $3\frac{1}{2}$ years, and 7 years are reported.

In 1 case there was pain only in the lower extremities; three others showed marked pain, very generally distributed; thickening of the upper end of the femora, and excrescences on the gums. The fifth case presented the hemorrhagic form with purpura, melena, and bleeding gums. These 5 cases were fed on sterilized milk and proprietary foods. Thiercelin attributes the development of scorbutus in these cases to the exclusive use of artificially prepared food. In no instance were there any signs of rachitis.

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THE MEDICAL TREATMENT OF TUBERCULOUS PERITONITIS IN CHILDREN.*

BY LEONARD GUTHRIE, M.A., M.D. (Oxon.), F.R.C.P. (Lond.).

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In discussing the medical treatment of tuberculous peritonitis I am hampered by the prevalent notion that surgeons alone are able to cure this disease. Mr. Watson Cheyne, for instance (Harveian Lectures, 1899, p. 59), asserts that, "The prognosis of tuberculous peritonitis when no surgical intervention has taken place is undoubtedly very grave; but much depends on the form of the disease and on the presence or absence of complications." With the latter part of the sentence I agree, but to the former I venture to demur. It implies that the prognosis when surgical intervention has taken place is no longer very grave, and that those who do not call in the aid of a surgeon are guilty of allowing a very grave prospect to continue, when it might easily be converted into one more favorable. If Mr. Cheyne's statement be accepted literally, any discussion on methods of treatment other than surgical would be a waste of time. But my own experience of tuberculous peritonitis leads me to think that the prognosis in uncomplicated cases in children is by no means so grave as we are taught to believe, and that the triumphs of surgery in curing this disease have been somewhat overrated.

Of 41 cases treated at the Paddington Green Children's Hospital, 14 underwent laparotomy and 7 of these died, whilst of the remaining 27 treated medically, only 4 were fatal. The death rate in surgical cases was therefore 50 per cent., whilst in medical

*Read at a meeting of the Society for the Study of Disease in Children, London, December 12, 1902.

cases it was under 16 per cent. Moreover, in the 4 fatalities under medical treatment, the cause of death in 3 was septic peritonitis due to perforation or rupture of mesenteric lymph node abscess; in one death was due to extensive pulmonary phthisis, also present in two of the others. All of them died within a month of entering hospital, and had they undergone laparotomy they would only have increased the percentage of surgical failures.

I am prepared to be told that the surgical cases were more severe than the medical which recovered, and admit the fact so far as the fatal surgical cases are concerned, but not as regards those which survived laparotomy. It has also been urged that cases which recover under medical treatment are not suffering from tuberculous peritonitis at all. Yet it must be remembered that the diagnosis is, in practically all cases, made by the physician and it seems a little hard that he should only be right when he calls in a surgeon, and always wrong when he does not.

Before discussing further the claims of surgical over medical treatment, I must follow the programme and deal with the latter.

MEDICINAL TREATMENT.—We cannot claim at present to slay the tubercle bacillus within the body by any drugs or antitoxins. But the resolvent action of such drugs as mercury and iodid of potassium on tuberculous inflammations is open to discussion. Most of the medical cases were treated by mercurial inunction or by biniodid of mercury given internally, and recovered. Whether in consequence of the treatment or not is a matter of opinion. Some got well without it.

Arsenic.—Is arsenic of use in tuberculous affections? It is believed to cure some cases of lymphadenoma, and it is now well known that so-called lymphadenoma in children is frequently tuberculous. It would therefore be interesting to discover whether these are the cases in which arsenic is of value—for if so, arsenic might affect the course of tubercular peritonitis. It is, I believe, used extensively in America with this object.

I know no other drugs which can conceivably have influence over tuberculosis. But by some guaiacol carbonate and iodoform are held in repute. Cod liver oil, of course, is used systematically, but probably as food rather than as medicine. Syrup of iodid of iron has a reputation, but I doubt if it is superior to other preparations of iron, when arsenic is present. Medicinal treatment of tuberculous peritonitis is almost entirely symptomatic.

SYMPTOMS.—The chief symptoms which call for treatment

are pain and abdominal tenderness, flatulency and indigestion, diarrhea or constipation, vomiting and ascites.

Pain is seldom marked in patients kept at rest in bed, unless it is due to the onset of acute septic peritonitis. The ordinary slight pains and tenderness can usually be relieved by local applications of belladonna, heated cotton, wool or spongipilin, or in some cases by painting with iodine. Opium is seldom required.

Flatulency and indigestion need careful dieting and bismuth.

Diarrhea, unless profuse and continuous, needs no active treatment. In some cases it may even be salutary in reducing ascites. Bismuth and opium, or aromatic chalk and opium powder are most useful remedies. Coto and various other astringents seem of doubtful utility. With the exception of biniodid of mercury, I have little faith in so-called intestinal disinfectants. They seem to us more useful when added to the evacuations than when taken internally. Diarrhea, when dependent on intestinal ulceration, is most difficult to control. If the ulcers are situated low down in the bowel, irrigation and astringent or soothing enemata may be of service, but when situated high up such treatment is of little use.

Constipation.—A loaded rectum should be cleared out by enemata rather than by purgatives, but an occasional dose of castor oil, cascara or compound licorice powder may be given unless evidence of ulceration in the shape of blood-stained, or black, offensive and purulent stools is present. But it must be remembered that ulceration may exist without any such evidence.

Medical Treatment of Ascites.—It is a question for discussion whether in cases of ascites with constipation and scantiness of urine, but without evidence of ulceration, purgatives and diuretics are indicated. I once treated such a case in this manner for a considerable time and the patient recovered. But this treatment is hardly to be recommended as a routine process.

Vomiting is seldom excessive unless signs of intestinal obstruction are present, and these call for immediate surgical interference. When due to gastric disturbance only, bismuth and hydrocyanic acid are the best remedies.

Diet.—It is seldom necessary to feed a patient on fluids only, unless there is obviously extensive ulceration. The pyrexia present is rarely high enough to interfere with digestion, and harm may be done by restricting patients to the diet usual in enteric fever. One must, of course, keep indigestible substances out of

the dietary. In one case fever and dangerous colic, following a diet including green apples, first drew attention to the existence of tuberculous peritonitis. Starchy and other foods which in excess tend to induce flatulency and fermentation must be given sparingly. Meat, fish, poultry, can usually be assimilated if carefully minced and prepared. Eggs, cream, milk and butter may be freely supplied. In some cases of intestinal diarrhea a diet of raw or partially cooked meat seems efficacious.

Hygiene.—In every case rest in bed, at all events in early stages, is essential and it should be in open country air. Sometimes children have been sent into the country merely in the hope of recruiting them sufficiently to undergo laparotomy, but in a few weeks they have returned practically restored to health. Also in most of the cases which recovered after laparotomy, improvement was not manifest until the effect of country air was tried. Hence I believe that the open air treatment is even more eminently suitable to cases of tubercular peritonitis than to those of pulmonary phthisis, and I would send all cases to undergo it under careful nursing and supervision, as soon as the diagnosis has been made or even suspected. Rest in the recumbent position should be maintained until all active symptoms have disappeared.

Medical treatment then consists simply in keeping the patient at rest, in supplying a nutritious and abundant diet, in the relief of incidental symptoms as they may arise, and, above all, in securing the advantage of open country air.

RADICAL TREATMENT OF ASCITES.—The next question which arises is: When should fluid be left in and when should it be let out?

In all varieties of cases it may subside spontaneously after rest in bed and mercurial inunction, but it also comes and goes whether mercury is used or not. In acute cases, unless fluid produces great distension and distress, it is inadvisable to interfere, for if removed it will speedily reaccumulate. Surgeons have discovered that laparotomy is seldom of use in such cases. But, as in some cases of pleural effusion, the withdrawal of a few ounces of fluid is sometimes sufficient to cause absorption of the rest. The supposed danger of setting up general tuberculosis by absorption of the fluid into the circulation is, I think, unfounded. General tuberculosis is far more likely to be due to carriage of bacilli by the circulation from tuberculous caseating lymph nodes to distant parts.

In more chronic cases, when fluid shows no tendency to subside, it should be withdrawn. Tapping or aspiration in such cases, unless one is certain that the fluid is free, is dangerous. It is better to make a small incision and insert a blunt, perforated trochar than to plunge a sharp instrument through the abdominal wall at the risk of wounding adherent intestines. Mr. Watson Cheyne says (p. 77 op. cit.) that, "Simple puncture alone is quite ineffectual." But 4 cases in which the fluid was free and excessive recovered after being so treated, and in only 1 of these was it found necessary to repeat the process, after the lapse of one year. It is, however, sometimes ineffectual, and the case should then be treated by simple incision and laparotomy. This is the operation which is supposed to have revolutionized the prognosis in tuberculous peritonitis. It is of the simplest character. The surgeon makes a two-inch incision through the abdominal wall, lets out any fluid which may be present, calls upon the bystanders to observe the resemblance between a tuberculous peritoneum and a sago pudding, and then closes the wound. It is no longer considered necessary to irrigate the peritoneum with or without antiseptics, nor even to break down adhesions unless they are causing obstruction. The surgeon, like an ancient Etruscan *haruspex*, merely gazes at the victim's entrails, and then discovers propitious omens for the future of abdominal operations.

Many fanciful theories have been invented to explain the recovery of 50 per cent. of cases after laparotomy. The entrance of light, air, oxygen, and of nonpathogenic organisms has been held by different theorists to effect a cure. Mr. Watson Cheyne believes that the tuberculous fluid evacuated is replaced by antibacterial serum inimical to the tubercle bacilli. If this is so, a similar result should follow simple puncture, and perhaps it does, although the procedure has been regarded as quite ineffectual.

I believe, indeed, that there is no mystery whatever in the matter, but that simple laparotomy is useful only in so far as it lets out fluid. Dry cases, which are also supposed to be cured by the operation, would, I believe, recover equally well if let alone, provided that no complications, such as extensive ulceration, septic peritonitis due to suppuration of glands or perforation, meningitis, or advanced pulmonary phthisis, occurred.

Indeed, the recovery of uncomplicated dry cases, not operated upon, compares favorably with laparotomy cases where convalescence is retarded by abscesses and fistulae arising from tuber-

culous infection of the operation scar. On the other hand, surgical interference is absolutely necessary in cases of obstruction by adhesion bands or stricture, and in cases where suppuration is suspected. When acute septic peritonitis from perforation or rupture of an abscess occurs, an operation is the only chance, though a forlorn one, of saving life. Finally, I believe that caseous mesenteric lymph nodes should be removed, if possible, as being the chief source of fatal dissemination.

It will be observed that in all these cases something more is necessary than merely opening the abdomen and looking inside. Unfortunately the cases in which more is necessary are those which make the mortality of the operation as high as it is. Whilst the more favorable results of foreign observers are, I believe, due to operating upon cases which would get well without.

In conclusion we owe a debt of gratitude to surgeons who, through fortunate errors in diagnosis, have taught us that conditions once held to be incompatible with recovery are by no means necessarily fatal. Those who advocate indiscriminate operations may be reminded of the well known story of Ambrose Paré, the celebrated French surgeon. Once, after a battle, he ran short of boiling oil, and could not sleep for thinking of the sad plight of the wounded who had not received their share. But the next day he found them infinitely the better for being without it.

Acute Inflammations of the Tonsil.—H. Beckman considers the acute inflammations of the tonsil as etiological factors in acute or chronic catarrhal conditions of the nares, pharynx, and middle ear. Extended observation has shown that in 95 per cent. of cases of the latter diseases acute tonsillitis, either directly or indirectly, is to be regarded as the cause. According to this conception, such acute or chronic inflammations can only be successfully treated by measures which shall directly combat the tonsillar condition. Much experience has shown that removal of the tonsils is the only safe course to be followed. The excision, however, must be complete, for if any of the tonsillar tissue is left behind the nasal and pharyngeal condition is but little, if any, improved. In twelve years the author has performed 9,000 such operations, nearly all of which were followed by a complete disappearance of the rhinitis, pharyngitis, or otitis.—*Medical Record.*

AUTOPSY STATISTICS AT THE CHILDREN'S HOSPITAL WITH REFERENCE TO TUBERCULOSIS AND ITS ETIOLOGY.*

BY ALFRED HAND, JR., M.D.,
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The subject of tuberculosis, always of deep interest, has of late received added attention, but not excessively in proportion to the widespread dissemination of the disease. The subject is one of peculiar interest to pediatricists, for not only are the manifestations of tuberculosis rather different in childhood than in adult life, but the important question of the intercommunicability of bovine and human tuberculosis, upon which our honored and able fellow-member, Dr. Ravenel, has shed so much light, receives in part its answer in this field, infants being so often the foster-children of cows.

AUTOPSY RECORDS.—The figures which I have to present concern the statistics of autopsies at the Children's Hospital for a period of ten years:—

Total number of autopsies.....	332.
Total number showing tuberculosis.....	115, or 34.6%.

Conclusions as to the susceptibility to tuberculosis of children compared with adults cannot be safely drawn from autopsy statistics, so long as these include only a minority of the fatal cases, but the proportion is perhaps a little higher than a similar series in adults would show.

Apparent portal of infection (Hutinel's tuberculous chancre).	
Oldest lesion in the bronchial lymph nodes in.....	75 or 65.2%.
Oldest lesion in the mesenteric lymph nodes in.....	10 " 8.7%.
Process so general that the portal could not be determined.....	27 " 23.4%.
Portal so indistinct that it could not be determined in.....	2 " 1.7%.
Initial lesion in the tonsil in.....	1 " 0.9%.

This division according to the gross morbid anatomy does not clear up entirely the etiology of each case. Until recently it was thought that tuberculosis of the bronchial lymph nodes meant that the germs had gained access through the mucous membrane of the respiratory passages, the natural inference then being that the bacilli had been brought in by the inspired air. The specimens exhibited by Dr. Ravenel at one of our meetings showing primary bronchial tuberculosis without intestinal or mesenteric lesions in

* Read before the Philadelphia Pathological Society, November 13, 1902.

two monkeys and one cow whose food had been inoculated with tubercle bacilli have thrown much doubt on this question. Dr. Ravenel has not asserted that all primary bronchial tuberculosis is of alimentary origin, but he has clearly shown that this is possible in some cases. We are at present in the dark as to how to distinguish these cases from those in which the infection is airborne.

Of the cases having the oldest lesions in the mesenteric lymph nodes, the last three were studied by Dr. Ravenel who has reported his results to the Society. A fourth case is of peculiar interest; a well-nourished infant died suddenly without apparent cause; the autopsy showed a large thymus and large mesenteric lymph nodes without any appearance of tuberculosis; with the thought that it would be interesting to exclude tuberculosis from these cases of the lymphatic diathesis, the nodes were sent to Dr. Ravenel who obtained cultures of the tubercle bacillus from them.

Two cases of tuberculous meningitis had no signs of tuberculosis elsewhere; I made the autopsy in the second one and was much relieved on consulting the records to find that my able predecessor, Dr. W. S. Carter, had had a similar experience. Two theories arise in explanation of these cases, one being that the bacilli gain entrance through a necrosed cribriform plate, the other being that such cases may be like the above-mentioned one of thymus death, the bacilli passing through the usual channels without leaving their card.

DISTRIBUTION OF THE LESIONS.—The organs affected by the tuberculous process were as follows:

Bronchial lymph nodes.....	94	or 81.7%.
Lungs.....	70	" 78.3%.
Spleen.....	55	" 47.8%.
Mesenteric lymph nodes.....	53	" 46.1%.
Liver.....	52	" 45.2%.
Meninges.....	36	" 31.3%.
Intestines, ulceration.....	28	" 24.4%.
Kidneys.....	26	" 22.6%.
Peritoneum.....	21	" 18.3%.
Suprarenal glands.....	11	" 9.5%.
Anterior mediastinal lymph nodes.....	10	" 8.7%.
Heart-muscle.....	10	" 8.7%.
Bones (vertebræ or hip).....	10	" 8.7%.
Pancreas.....	5	" 4.3%.
Brain.....	3	" 2.6%.
Tonsils.....	1	" 0.9%.

Several points of interest are apparent from the above series. One is the absence of any instance of pericardial involvement, especially in the well-known clinical group of symphysis of the pericardium with enlargement of the liver and ascites, the so-called cardiotuberculous cirrhosis. On the other hand the heart-muscle was affected much more frequently than is the case in adults; in several of these instances the tubercles were situated beneath the epicardium or the endocardium, histologic examination showing the serous layer to be unaffected. It is also of interest to refer to the established fact that tubercle bacilli can pass through a mucous membrane without any apparent lesion; this is shown by the above figures for the mesenteric nodes and intestines; the lymph nodes were distinctly tuberculous in nearly one-half of the cases, while the mucosa of the intestines was ulcerated in only one-fourth. It seems to me that this is the only way that mesenteric nodes become tuberculous, as I do not see how it is possible for them to become infected by the blood-current, or by a retrograde current in the lymphatics, as has been suggested in explanation of the origin of tuberculous meningitis from caseous bronchial glands. The clinical observation that external tuberculosis (including in this term that of the bones) rarely strikes is borne out by the small number of such cases, 8.7 per cent. in the series as contrasted with the large number of hip and spine cases constantly in the wards.

TABLE OF THE AGES AT TIME OF DEATH.—A study of the age-incidence furnishes an interesting field for speculation.

Under 2 years of age...	60.
From 2 to 5 years of age.....	25.
From 5 to 12 years of age.....	30.

It is thus seen that a little over one-half of the cases occurred in infants, and approximately one-quarter in each of the periods of early and later childhood. It is probably safe to infer from these facts that a tuberculous infection, when not overcome at the start in infants, meets with relatively little resistance as compared with that furnished by adults. It does, however, seem that in some way infants must be much more exposed to tuberculosis than older children, when we consider that for five years or half of the period covered by the statistics the infant population of the hospital was never more than one-twelfth of the total population, and during

these years the age-limits for admission were from two to twelve years, the only infants admitted being those so gravely ill as to necessitate an exception to the rule; for the next three years infants of any age were admitted, the baby ward containing nearly one-fourth of the hospital beds; for the last two years no infants under three months of age have been admitted, the baby ward containing from ten to twelve beds. The average for the ten years gives the baby ward one-eighth of the population of the hospital, while it furnished in that time over one-half of the autopsy cases of tuberculosis.

If infancy is held to comprise four periods of six months each, it is found that the 60 cases are divided as follows:

First period (infants mostly in arms and breast-fed).....	9.
Second period (infants creeping; bottle-feeding started).....	16.
Third period (bottle-feeding; infants creeping and walking).....	19.
Fourth period (diet less exclusively milk; infants walking).....	16.

The number of cases is not large enough to furnish positive deductions as to the modes of infection especially as all data relative to the plan of feeding before admission to the hospital are not of value, and all that we can safely infer is that the number of cases is greatest at that time when the possibility of infection, both through the air and through the milk, is the greatest.

CONCLUSIONS.—(1) The majority of cases of tuberculosis in infants and children is apparently the result of air-borne infection.

(2) A certain percentage of cases is of primary intestinal origin, probably the result of food-infection, as those cases which were subjected to exhaustive experimental study gave bacilli resembling the bacillus of bovine tuberculosis in all of its characteristics. This group is sufficiently large to render imperative measures of prevention.

(3) From an anatomical standpoint there is no way of distinguishing those cases of primary bronchial tuberculosis which might be the result of food-infection from those in which the infection is air-borne.

(4) The large proportion of cases in infants suggests either a greater exposure or a less resistance to the infection as compared with children over two years of age.

STERILIZED MILK, PASTEURIZED MILK OR CLEAN MILK?*

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This paper is not read with the expectation that it presents much that is new, either in theory or in fact; but rather with the hope that by reiteration of well known theories and facts, it may help somewhat to stimulate the profession to greater activity in the endeavor to secure clean milk.

HISTORY.—As long ago as 1878, some attempt was made to improve the quality of milk in connection with German Milk Cure establishments.¹ The ARCHIVES OF PEDIATRICS began publication in 1884 but not until 1888² does its index contain reference to the sterilization of milk. In 1889 Jacobi,³ who had long practised and taught the wisdom of boiling milk for infant feeding, makes reference to the introduction of Soxhlet's apparatus by Dr. Caillé as an improvement, but to Soxhlet belongs the great honor of having systematized and popularized the boiling or sterilization of milk for the special use of infants.

STERILIZATION was soon accepted all over the world as a desideratum long sought in infant feeding. Gradually through the years its approximate value has become more fully known, while its dangers and limitations have become more evident. The term sterilization is widely and rather loosely used to signify the heating of milk for the destruction of germs. It should be borne in mind, however, that none of the methods commonly employed renders milk sterile in the bacteriological sense of the word. This may be done by heating on two or three successive days to 212° F., the so-called tyndallization. What is accomplished by ordinary methods is the destruction of the germs of typhoid and scarlet fever, diphtheria and tuberculosis with a large number of other bacteria, so as to retard for a time the ordinary fermentative changes. It is conceded by all that one of the more important conditions of the infant's diet is that it should be sterile. Should the food be more difficult of digestion or involve a longer time in

* Read at the ninety-seventh annual meeting of the Medical Society of the State of New York, held at Albany, N. Y., January 27-29, 1903.

digestion than its natural aliment, so much the greater is the necessity. Cow's milk, the most important substitute for human milk, has been obtained sterile under special conditions, but commercially it never is so. It has from a few hundred or thousand of bacteria per c.c., when obtained and kept under proper conditions, to several millions, when unhygienic conditions obtain or it has not been quickly cooled and kept so.

It should always be distinctly understood, that the application of heat to 212°F . will not make foul milk good and safe for food. Such milk still contains the dead bodies of the bacteria and the toxins derived therefrom. Conn has isolated and grown more than two hundred varieties of bacteria which he found in milk. Most of these varieties are seldom met with, others are common, while a few are nearly always found.

Ordinarily, the great majority are lactic acid producing bacteria, which chiefly come from the fore milk, being found in the milk ducts and cisterns of the cow's udder. Others still, according to Moore and Russell, produce alkaline or other forms of fermentation and are largely from the dust of the stable, loose hairs and excreta from the cow's udder and flank. These are apt to be spore bearing and thus resist sterilization. While some bacteria are of great value to the butter and cheese maker for the development of flavors, so far as known none are of advantage in milk used for food, while some are decidedly poisonous.

Effects of Boiling Milk.—Milk raised to the temperature of 212°F . is markedly altered both in taste and smell, and many observers notice the changes which occur both in its chemical and physical properties, as well as in its digestibility. I quote these changes as summarized by Judson and Gittings⁴ from many sources:

(a) Decomposition of lecithin and nuclein. (b) Organic phosphorus is diminished and inorganic phosphorus is increased in amount. (c) The greater part of the phosphates are rendered insoluble. (d) Precipitation of the calcium and magnesium salts. (e) The greater part of carbon dioxid is driven off. (f) Normal lactic acid fermentation is prevented, allowing more deleterious fermentations to follow. (g) Lactose is destroyed. Johannesen says, however, that this does not occur below 230°F . (h) Caramelization of a certain portion of the lactose. (i) The fat emulsion is rendered imperfect or destroyed by coalescence of the fat globules. (j) Separation of the serum albumin begins at

167°F. (*k*) Casein is rendered less easy of coagulation by rennet. (*l*) Casein is slowly and imperfectly acted upon by pepsin and pancreatin. Leeds says the proteid substances become attached to the fat globules and probably hinder to some extent fat assimilation. (*m*) Peptone and toxins can be found after prolonged sterilization. Vaughan⁵ says that the toxin of the colon bacillus, which is constantly present in great numbers in unclean milk, is not lessened in toxicity by a temperature of 356°F. One two hundred and seventieth of a grain will kill a guinea pig. (*n*) The taste is rendered objectionable and the cream does not rise well, although this does not lessen its value as an infant food.

Explanation of the Effects of Sterilization.—In explanation of some of these results Blackader⁶ quotes Wroblewski, who points out that certain of the calcium salts which in normal milk are in a soluble state are made to enter in an insoluble combination by high temperature; the part played by calcium salts in connection with these ferments and their products, whose presence is a special feature of organic fluids, is becoming more and more fully recognized. Duclaux has pointed out recently that ferments of many kinds are only effective in the presence of minute quantities of calcium, magnesium or other material, the mineral varying with the special form of fermentation. For the coagulation of blood, calcium must be present, and for coagulation of milk in the stomach, calcium, in a more or less free form, must also be present. If the calcium salts in the stomach through heat undergo alteration so that they are rendered insoluble, then the coagulation of the caseinogen will be to that extent arrested or delayed. In corroboration of this, it is found that outside of the body, boiled milk undergoes coagulation with rennet with much difficulty. Inasmuch as the primary coagulation in the stomach appears to be necessary for the normal digestion and absorption of milk into the system, it is certainly questionable whether boiled milk, as a rule, can be absorbed and assimilated as readily as milk which has not been brought to a temperature sufficient to change the condition of its calcium salts. It is probable that certain fermentlike bodies, which are of more especial value in the body, are found in milk according to experiments made by Babcock and Russell⁷ of the Wisconsin Experiment Station, who found that milk obtained in a sterile condition was capable of undergoing self digestion because of the presence of a trypsin which was easily destroyed by heat. Holt⁸ says that many of

these changes are imperfectly understood and some are doubtless without any injurious effect upon nutrition. There is, however, one important clinical reason for believing that the nutritive properties of milk are impaired by heating to 212°F ., viz., the occurrence of scurvy in infants who are fed on such milk for a long time. Of 379 cases of scurvy brought together in the report of the American Pediatric Society in 1898, sterilized milk was the previous diet of 107.

PASTEURIZATION.—To obviate many of the disadvantages enumerated, the practice of low temperature sterilization or pasteurization has come into frequent use in America, largely owing to the work of Freeman, of New York, and Russell, of the Wisconsin Agricultural Experiment Station. At first a temperature of 167° to 180°F . was used, and more recently a lower one, 140° to 160°F ., for reasons which will be given below. Considerable latitude⁹ with reference to temperature limits is permissible in pasteurization, but there are certain conditions which should be met, and these in a sense fix the limits employed. Inasmuch as it is not desirable to have any material change in taste and appearance in milk from that normally found in the raw product, the pasteurizing temperature should be limited to a degree of heat that can safely be employed without danger of imparting a cooked or scalded flavor to milk. If the exposure is continued for any considerable time, say fifteen or twenty minutes, the change in taste appears to be quite prominent when the milk is heated to 158°F . This condition, therefore, determines the maximum limit which should be used in pasteurizing, if one is to avoid the production of the cooked flavor. Even below this temperature a slight change in flavor occurs, although it is destroyed upon chilling the milk. To be of value in increasing the keeping quality of milk and to insure freedom from disease bacteria, it is necessary in all cases to exceed the thermal death point of at least the actively developing bacteria in the milk. For most bacteria this limit is constant and quite sharply defined, running from 130° to 140°F ., where the exposure is made for ten minutes. Where exposed for a briefer period of time, the temperature limit is necessarily higher.

Destruction of the Tubercle Bacillus.—The organism that is invested with most interest in this connection is the tubercle bacillus. On account of its more or less frequent occurrence in milk and its reputed high powers of resistance, it may be taken

as a standard in pasteurization. Concerning the exact temperature at which this germ is destroyed, there is considerable difference of opinion. Part of this arises from the difficulty of determining exactly when the organism is killed, and part from the lack of uniform conditions of exposure. The standards that previously have been most generally accepted are those of DeMan, who found that thirty minutes' exposure at 149° F., fifteen minutes at 155° F., or ten minutes at 167° F. sufficed to destroy this germ. More recently it has been proven and these results confirmed by different investigators that, if tuberculous milk is heated in closed receptacles where the scalded surface pellicle does not form, the vitality of this disease germ is destroyed at 140° F. in fifteen or twenty minutes. If the conditions of heating are such that the surface of the milk is exposed, the resistance of bacteria is greatly increased. When heated in open vessels, Smith found that the tubercle bacillus was not killed in some cases where exposure was made for at least an hour.

Influence on Digestibility.—Considerable difference of opinion, as has been noted, has existed in the minds of medical men as to the relative digestibility of heated and raw milks, and a considerable amount of experimental work has been done by making artificial digestion experiments with enzymes, also digestion experiments in animals and also in a few cases with children. The results obtained by different investigators are quite contradictory, although the preponderance of evidence seems to be in favor of the view that heating does impair the digestibility of milk; especially, if the temperature attains the sterilizing point. Those who wish to follow this subject further are referred to the bulletin of the Maryland Experiment Station for August, 1901, by Doane and Price. These objections do not obtain in milk heated to a moderate temperature as in pasteurization, although this temperature, says Russell, lessens slightly its digestibility.

Necessity of Keeping Milk Cold.—The normal souring change in milk is due to the predominance of the lactic acid bacteria; but, as these organisms as a class do not possess spores, they are readily killed when heated above the thermal death point of the developing cell. The destruction of the lactic acid forms leaves the spore bearing types possessors of the field, and consequently the fermentation changes in heated milk are not those that usually occur; therefore, all heated milk, whether pasteurized or sterilized, should be cooled as quickly as possible after heating,

and if used by children, should be consumed within twenty-four hours. If left under conditions favorable to germination, bacterial growth will go on, and, as it has been shown by Flugge, the type of fermentation produced may sometimes be deleterious. The following experiments by Marshall¹⁰ are of interest in connection with this point, as showing the influence of cooling on the germination of spores. Cultures of organisms that had been isolated from pasteurized milk were inoculated into bouillon. One set was left to grow at room temperature; another set was pasteurized and allowed to stand at the same temperature, while another heated set was kept in a refrigerator. The unheated cultures at room temperature showed evidences of growth in thirty trials in an average of twenty-six hours. Twenty-nine heated cultures at room temperature all developed in an average of fifty hours; while the heated cultures kept in the refrigerator showed no growth in forty-five days, with but four exceptions. It follows from this that after milk is pasteurized it should be kept in germ-free receptacles.

STERILIZATION VERSUS PASTEURIZATION.—From what has been said it would seem that the argument is altogether in favor of pasteurization. The lowest temperature and the shortest time that will surely destroy the objectionable bacteria in milk would seem to warrant general adoption. Pasteurization, however, requires more care, intelligence and more special apparatus, and if it is not properly done, it may be worse than nothing. Sterilization at 212°F. is simpler and may be done with many and inexpensive forms of apparatus, or without any apparatus. Therefore, when no ice is available, it is certainly safer in hot weather than pasteurizing. In cities and among the poor, milk heated to 212°F. for thirty to sixty minutes is probably not only the most satisfactory, but the most efficient method of sterilization. In fact, this may be done two or three times a day. The risks sometimes attendant upon it should not be forgotten, especially when it is continued for a considerable length of time. It is important that sterilization be done at the earliest possible moment, before bacteria have developed, because the fewer spores and spore bearing bacteria which the milk contains, the more effective will be the sterilization; therefore, the cleaner the milk, the better will be the sterilization. The clinical test, after all, is the court of last resort, in deciding what is best in foods or methods of feeding. The true value of pasteurization in large

cities is best shown by the great lessening of the mortality rate among infants in New York following the free distribution of pasteurized milk to the poor from the Nathan Strauss milk depots.

OBTAINING CLEAN MILK.—That fresh, clean, unadulterated cow's milk, from healthy animals and free from pathogenic organisms, is the best food for infants, and should be an important part of the food for growing children, all will agree; that it is one of the chief foods for those who are sick in later life is also true. That such milk can be obtained is unquestionable. And it is also strangely and unfortunately true, that it is only provided to the larger cities, where the problem of distribution from dairy to consumer is so much greater than in smaller cities and towns, where the time from production to consumption is much less. It is then to the proposition that such a condition of things is not necessary and should not be, that I invite your attention this evening. Well might Jacobi, the Nestor of American pediatrics, exclaim last summer at Saratoga that the greatest advance in pediatrics made in the last ten years had been the obtaining of pure, clean milk as food for infants. So far as I know the Walker-Gordon Company supply eighteen cities, principally in the United States, with good milk. The Milk Commission of the Medical Society of the County of Essex, New Jersey, controls the Fairfield Dairy Company, which is the forerunner of all producers of good milk. Besides these, the Milk Commission of the Medical Society of the County of New York issues certificates to several dairies for the City of New York, the Milk Commission of the Philadelphia Pediatric Society to several in Philadelphia, and more recently the Milk Commission of the Medical Society of the County of Kings has begun to issue certificates to others in Brooklyn. I am also informed that "certified" milk can be obtained in Albany bearing the certificate of the Medical Society of the County of Albany.

In March of last year, agitation was begun in our Ehnira Academy of Medicine for better milk. A Milk Commission of six physicians was appointed under its auspices. A bacterial standard of ten thousand per c.c. and from $3\frac{1}{2}$ to $4\frac{1}{2}$ per cent. of butter fat was established. Then a search for a dairyman was begun. At first no one was found ready and willing to comply with the requirements. Finally, one dairyman was discovered who was willing to build new barns to endeavor to comply with

the demands of the Commission, and in two or three months it is expected the Commission will be ready to issue certificates. What has been done in one town of forty thousand, can be done in others, if the physicians desire it.

What constitutes clean milk? There is no absolute standard. The number of bacteria present depends upon care as to cleanliness, control of the temperature, and the age of the milk. If milk is quickly cooled to 40° or 45° F., bacterial growth is slow. If greater care is used as to cleanliness, which means a clean stable, free from dust, clean, healthy cows, clean, healthy milkers, and clean utensils, the bacterial count will be low. The observations of Park¹¹ and Hunziker¹² have shown that the germicidal action of milk lessens the number of bacteria during periods varying from six to twenty-four hours. Such milk will have almost as low a bacterial count in twenty-four hours as when drawn. This is not true, however, if care is not taken to exclude filth and to quickly cool the milk. The Milk Commission of the Philadelphia Pediatric Society has a standard of ten thousand bacteria to the cubic centimeter; New York and Brooklyn, thirty thousand. Some special farms have reported as low an average as 2,250 throughout the year, others five, six and seven thousand, up to fifty thousand. The great value of these figures is in the strict cleanliness which must be used to get them. Much stress has been laid upon the necessity of throwing away the first few streams of the fore milk, because the fore milk contains a much larger number of bacteria. But according to the experiments of Hastings¹³, in Russell's laboratory, this lessens the keeping quality of the milk. He found that the fore milk, though much richer in bacteria than the whole milk, does not coagulate nearly as soon. In a series of five trials the fore milk did not curdle at room temperature on an average until after eighty-four hours, while the average time of curdling of the whole milk was thirty-eight hours.

All cows should be tested for tuberculosis, and all those reacting rigorously excluded, not alone because of the possibility of infection from the tubercle bacillus, but because, if the observations of Jenma¹⁴ are confirmed, milk containing tuberculous germs is dangerous, even if strictly sterilized. He found that young rabbits fed upon sterilized milk containing the bodies of dead tubercle bacilli, died within fifteen to twenty days of marasmus. Other rabbits fed on plain sterilized milk free from

tubercle bacilli flourished. The autopsy showed only enteritis, and fatty degeneration of the liver.

It has usually been urged that common cows, ordinary varieties, are less liable to tuberculosis than high-bred breeds. This may be true. But some dairymen have learned at tremendous cost, that a cow to do good work must not only be well fed, but must be placed in good hygienic conditions otherwise. The air space must be abundant and the barns must be kept clean. Cows so kept have little tendency to tuberculosis. A magnificent illustration of this is to be found at Briarcliff, where Mr. Law says he has no tuberculosis in his great dairy of high-bred Jerseys. If milk is unadulterated, the butter fat will average about 4 per cent., and this may be taken as a possible standard in that respect. It has been urged that milk produced under such conditions costs so much as to be beyond the reach of the average family. Both Chapin¹⁵ and Pearson¹⁶ say such milk can be produced at an average increased price of one cent per quart over ordinary milk.

CONCLUSIONS.—Briefly then in summary. (1) Sterilization at 212°F. is of great value, especially in cities and to the poor who lack intelligence, because it may be performed by any one and with simple or no apparatus. (2) Pasteurization at a temperature of 140° to 158° F. in closed vessels for fifteen minutes is much to be preferred; as the milk is little changed in its taste or chemical properties from raw milk, and this temperature is sufficient to kill the pathogenic organisms and lactic acid producing bacteria. But we must agree with Holt¹⁷ when he says, that all heating of milk sufficient to kill bacteria, does impair to some extent its nutritive properties, and to a degree proportionate to the height of temperature employed and the length of time it is continued. (3) When obtainable, fresh, pure, clean milk used raw is much to be preferred. (4) It is now supplied to many of the large cities. (5) There is a strong and rising demand among the laity for such milk. (6) It can be provided to all cities and towns of even moderate size if the profession will put forth proper efforts to procure it. (7) Under a general law all milk dealers should be licensed by the city or town in which they sell milk. Such license should give the health officer power to enter upon and inspect the premises upon which the milk is produced, at any time he sees fit. And it should also carry with it a statement on the

part of the dealer that all cows producing milk which he sells have been tested for, and found free from, tuberculosis.

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The Comparative Value of the Different Methods of Administering Thyroid

—In review of the varieties of thyroid medication, Briquet (*La Presse Médicale*, September 13, 1902) comes to the conclusion that subcutaneous injection of the thyroid extract is only necessary when it is impossible for the stomach to absorb. The ingestion of the fresh gland is the most certain mode of thyroid medication, but its general application is impracticable. The most available preparations are those made from the desiccated gland, which include those that have been reinforced by the so-called active principle. To the first the writer gives the preference in the majority of cases. Iodothyrim is an active principle of value in certain cases of myxedema, but in general it lacks the power of an extract of the whole gland. It may be administered in cases in which the extract is not well tolerated by the stomach, and in which the administration of the drug is followed by the symptoms of thyroidism.—*Medicine*.

BRACHIAL MONOPLÉGIA IN THE COURSE OF CHOREA MINOR.

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In addition to the characteristic incoördinate movements, chorea is frequently accompanied by a real or apparent loss of power in the muscles affected. The inability may be of such degree as to excite the suspicion of an actual paralysis. Children, in quite a number of instances, have been brought to the clinic, under the impression that one side or both legs and arms were paralyzed, the twitching being so slight as to be overlooked by the parents. In the greater number of cases the loss of power is not marked. The muscular weakness is manifested by a feeble clasp of the hand, a dragging of the leg, or a limping gait. Walking is, as a rule, awkward and difficult.

Sydenham speaks of the "unsteady movements of one of the legs, which the patient drags." Osler writes, "there may be extreme paresis with but few movements—the paralytic chorea of Todd. Occasionally a local paralysis or weakness remains after the attack." Sachs ("Nervous Diseases of Children") says, "some weakness of the muscles is frequently associated with choreic movements. The term paralytic chorea has been proposed for those cases in which there is marked paralysis; but as there is more or less weakness in the majority of the cases, and often more awkwardness than weakness, there does not seem to me to be sufficient excuse for the introduction of this term." In paralytic chorea, according to Dana, "one arm becomes rather suddenly weak and powerless, and a few twitching movements are observed. This form occurs only in children and runs the same course as the spasmodic type."

The following abstract of a case of "Brachial Monoplegia in the Course of Chorea of Sydenham" appears in *ARCHIVES OF PEDIATRICS*, January, 1903, page 74. "A girl fourteen years old, of alcoholic and rheumatic family history, had an attack of sub-acute, polyarticular rheumatism, followed by chorea. The twitchings were limited to the left side at first, but later the right side also became involved. Two months after the onset of the attack

the movements of the right arm ceased and gave place to an incomplete paralysis, which left the fingers alone exempt. The paralysis lasted three weeks and then disappeared completely. The chorea lasted four months, but was entirely cured."

A case similar to the above came under the observation of the writer in the Children's Service of the Beth Israel Hospital.

HISTORY.—Sarah K., native of Russia, eight years of age, admitted October 10, 1902. *Family history* negative. With the exception of measles when three years old, she had been well. No rheumatic history obtainable.

Present History.—Two months before admission the child was seized with diarrhea to the extent of ten to twenty movements daily. The stools consisted principally of mucus, at times tinged with blood. She never complained of any discomfort until eight days ago, when she began to have diffuse pains all over her abdomen. The above condition has continued and the pains have increased in severity in spite of medication. About a week ago her mother noticed the twitchings which at first were slight, but which progressively increased in severity. The appetite has not suffered, nor has there been any fever. She cries a great deal and is very irritable.

Physical Examination.—General nutrition fair. Pronounced, violent, irregular, incoordinate movements in all the extremities; the muscular disturbance is so marked that the child is unable to stand, walk or lie quietly. The muscles of the face and tongue are also involved. Speech is slow and indistinct, deglutition difficult. Heart and lungs, negative. Abdomen negative. Urine negative. Fetid, purulent discharge from the vagina. Hymen absent and patent orifice noted, due probably to masturbation. No gonococci present. A few ecchymotic spots, principally over the anterior aspect of both tibiae, are present.

TREATMENT.—Absolute rest, physical and mental, was insisted upon. The sides of the crib were padded to avoid the possibility of injury, and the bed, furthermore, was screened to prevent any teasing or annoying on the part of the other children. This practical isolation at the same time prevented the possibility of any untoward nervous impression upon others in the ward, as many of the little patients were of a neurotic temperament. The extreme restlessness was controlled by hypodermic injections of morphia. Later on codeia and finally tincture of opium and ipecac in appropriate doses were ordered. Under proper diet, etc.,

the enteritis improved, and in about a week the stools were normal in character. The choreic movements gradually grew less violent, and in about three weeks speech was restored and the child became quiet.

About the beginning of November, when the child was allowed to sit up, it was noticed that there was complete loss of power in the left upper extremity, excepting slight movements in the fingers. The inability was so marked that a poliomyelitis was suspected, but the suspicion was soon dismissed. The left leg appeared to be somewhat weaker than the right. Under massage and tonics the trouble gradually disappeared and when the child was discharged, November 19th, the left upper extremity had regained its normal function.

The transitory nature of this variety of motor disturbance leads to the belief that it is simply functional in character. There can be no organic lesion in these cases. In epilepsy we now and then meet with a similar condition. Hughlings Jackson and others ascribe it to the exhaustion of the cortical cells in the motor area of the brain, in consequence of the explosive discharge of their energy in the convulsions.

A word as to the treatment: The routine treatment with arsenic was not resorted to in this case, as in the experience of the writer aggravated cases do better when treated with opium or one of its derivatives. The following interesting observation of Preoprajensky may be profitably referred to in this connection. A brief abstract of his case of chorea of infective origin, in which streptococci were readily obtained from the blood, is reported in the *Medical News*, February 14, 1903, page 308. The manifestations were of a grave character. The choreic movements, *various muscular weaknesses and paralyses*, began to mend after a few injections of antistreptococcus serum, although bromids, chloral, arsenic and other well known remedies had failed to afford any relief. The same authority states that he found streptococci in the blood of another patient suffering from chorea, in the hospital at the same time.

REPORT OF A CASE OF SINUS THROMBOSIS RESULT-
ING IN EXTENSIVE CEREBRAL HEMORRHAGE
IN AN INFANT FIFTEEN DAYS OLD.—
SIGMOID FUSION OF THE
KIDNEYS.*

BY SAMUEL McC. HAMILL, M.D.,
Philadelphia.

The infant from whom these specimens were removed was born on the 10th of January, 1902; there was no history or evidence of syphilis in the mother; the labor was normal and the child was not asphyxiated. His temperature was slightly elevated from the second day; on the seventh day he developed a papular eruption on his face. The infant's temperature rose suddenly with the appearance of the eruption to 104° F. He took nourishment well and had no gastrointestinal disturbance. The temperature fluctuated between 101° and 104° F. during the eighth, ninth, tenth, eleventh and twelfth days of life. The facial eruption persisted, and a similar eruption developed over the neck, shoulders and flexor surface of the arms. The persistent fever was attributed to this eruption.

On the thirteenth day "the baby gave some slight evidences of pneumonia," rapid respiration and a harsh vesicular murmur. The temperature became a little more elevated. A cotton jacket was applied.

On the fourteenth day there developed marked twitching of the muscles of the right eye and constant lateral rotation of the head. There were no general convulsions. The child did not cry out. He had no gastrointestinal symptoms. He nursed poorly and was somewhat cyanosed.

On the fifteenth day the temperature was less high—102° F.—and he seemed much better. The movements of the head had almost ceased, and the twitching of the right eye was less; nourishment was well taken. The eruption had become more marked and in some places pustular.

On the sixteenth day, the day of death, the temperature rose

* Read in abstract before the American Pediatric Society, Boston, May 26, 27, 28, 1902.

to 106.8°F. at 8 A.M. The child vomited a large quantity of blackish material, which was evidently altered blood, and had several tarry stools. The face became much cyanosed; great restlessness ensued, and death occurred rather suddenly at mid-day.

AUTOPSY.

The autopsy was made about twenty hours after death. The body was poorly nourished; the head was large, the fontanel bulging. The cranial bones were widely separated in the lines of the sutures.

A papulopustular eruption was present on the face, neck, forehead, shoulders, arms and upper part of the chest; in some areas it was hemorrhagic, especially over the flexor surfaces of the arms. Postmortem lividity was present in the dependent portions of the body. Rigor mortis was marked. The umbilical stump was not entirely healed and rather unhealthy in appearance.

Abdomen.—On opening the abdomen the umbilical arteries were found to contain thrombi. The stomach was much distended and the liver enlarged, extending below the transverse umbilical line. The lobus Spigelii seemed abnormally large. The gall bladder was partially filled. The spleen was slightly congested, but not enlarged. The kidneys were anomalous. The cecum and small intestine overlay the lower portion of the anomalous kidney, and the vermiform appendix was closely applied to its anterior surface. The ascending and transverse colons passed over and were adherent to its upper portion. There was some congestion of the vessels of the mesentery, and some enlargement of its lymph nodes.

Thorax.—Examination of the thorax showed a half ounce of clear liquid in the left pleural cavity. The thymus gland was not enlarged. The pericardium contained a half ounce of clear fluid; its walls were smooth; both auricles were distended with liquid blood, the right more than the left. The veins of the heart were greatly distended. There were no abnormalities in the heart.

The lungs were free and showed some congestion at their margins.

Abdominal Organs.—The stomach contained some blackish material having the appearance of altered blood. There was no congestion nor erosion of its mucous membrane. The intestines contained nothing abnormal. The liver on section was yellowish in color and rather soft. The spleen was normal.

Kidneys.—There was no kidney present on the left side. The left suprarenal gland occupied its normal position and was normal in size and appearance. There was a fusion of the kidneys of the sigmoid variety—the anomalous kidney lying entirely to the right of and close to the vertebral column. There was no other abnormality found.

The Brain.—On opening the cranium following the lines of the sutures there was found, overlying the left hemisphere, a large mass of clotted blood, more marked anteriorly. This extended into the substance of the brain causing some destruction of tissue. Overlying the right hemisphere there was a less marked hemorrhage. The superior longitudinal, the left lateral and the straight sinus and the vena magna Galeni contained firmly organized thrombi. The veins of the brain throughout were distended with blood, and some of the superior cerebral veins on the left side contained thrombi; both lateral ventricles were dilated and contained considerable blood, especially the left.

Cultures were made on blood serum from the thrombus in the umbilical artery and from the spleen. There was a moderate growth on each tube. Cultures from the heart blood were contaminated. Agar slant transfers showed profuse growth after twenty-four hours; one showed a pure growth and the other an almost pure growth of a bacillus, possessing practically the same cultural characteristics as the colon bacillus.

The extensive thrombosis and hemorrhage found within the cranium is of considerable interest. The history of the case, the temperature record, the result of the bacteriological study, demonstrating a short, rather thick bacillus, closely simulating the colon bacillus, and the unhealthy appearance of the umbilical stump mark this as one of those not uncommon cases of infection of the new-born.

It has been shown pretty definitely that thrombosis never occurs without some previous disturbance of the vessel wall. In the veins it is a phlebitis which produces the thrombosis and this phlebitis is usually of microbic origin. This was the probable cause of the extensive thrombosis of the dural sinuses in this case, since, as has been said, the whole aspect of the case suggests an infectious condition. The extensive subdural and cerebral hemorrhages were probably secondary to the sinus thrombosis, that of the superior longitudinal sinus and cerebral veins accounting for the subdural and superficial cerebral hemorrhages, and that of the

straight sinus and veins of Galen for the hemorrhage into the ventricles.

While it is possible that all the instances of so-called hemorrhagic disease of the new-born are not infectious in origin, the vast majority are so unquestionably. The source of the infection has never been satisfactorily determined. The condition is almost entirely an institutional disease. One rarely runs across cases in private practice; on the other hand, most institutions have had experience with the condition, and usually in an epidemic form. It does not seem to bear any close relationship to septicemia in the mother. The latter condition exists frequently without the former, and epidemics of the infantile disease develop where there have been no cases of maternal septicemia in many months.

Renovation of the hospital wards will oftentimes entirely eliminate the disease. In a very serious epidemic in the Maternity Department of the University of Pennsylvania a few years ago, in which about 20 per cent. of the babies died, it was discovered that the infants became infected in a room, devoted exclusively to the use of the babies. Attention was directed to this room by the fact that children sent to their homes in a wretched condition improved immediately. The closing and complete renovation of it instantly checked the development of new cases.

Bacteriological studies have shown that there are a number of different microorganisms capable of producing these infections. In the University Maternity epidemic, bacteriological studies were made by Riesman (University Hospital Pathological Reports) and in nearly every case cultured the staphylococcus albus or aureus, one or both were found.

Nicholson (*American Journal Medical Science*, October, 1900) reported a case infected by the bacillus pyocyaneus. A number of instances are recorded of infection by the colon bacillus, the staphylococcus albus and aureus; some with the streptococcus, the bacillus lactis aerogenes, the bacillus of Friedlander, and some with a bacillus described by Gaertner as closely resembling the colon bacillus, and probably one of its many varieties. I have found in several instances bacilli which resembled the colon bacillus in nearly all their characteristics, and yet were dissimilar in a few particulars.

From one hemorrhagic case I recovered a bacillus which was pathogenic to guinea pigs, and which produced congestion and

hemorrhage into some of the abdominal organs. This resembled the colon bacillus in every respect save that it was nonmotile. I, therefore, classified it as the bacillus coli immobilis. In the case which I here report the bacillus closely resembled the colon bacillus, but was not exactly like it in microscopic appearance, and it did not produce indol.

The port of entry of the organism is as yet undetermined. It is probable that, in many instances, it is through the umbilical stump. In the case here reported, for instance, the unhealthy stump suggests such an origin. The gastrointestinal tract seems to be the avenue sometimes. In a series of cases which I observed in one of the lying-in hospitals of Philadelphia, the first symptoms noted were intestinal. It is not improbable that the infecting organism is sometimes introduced during the passage of the head through the birth canal. The skin and respiratory apparatus are sometimes held accountable, but I am inclined to think instances of infection through these media very infrequent.

Gelatin in the Treatment of Melena Neonatorum.—

Fuhrmann (*Münchener medicinische Wochenschrift*, No. 36, 1902; *Arte medica*, October 19th) has used injections of gelatin in 3 cases of infants suffering from melena. In 2 cases prompt recovery ensued, but in the third, which was not submitted to the treatment till very late in the disease, death occurred. In one of the cases in which recovery took place the prompt response to the remedy was a revelation. Here is Fuhrmann's formula:

R White gelatin.....1 gramme (15 grains);
Sodium chlorid, chem-
ically pure.....0.30 gramme (4½ grains);
Distilled water...50 grammes (12½ drachms).

M.

Such quantities may be injected as can be fully absorbed, and they satisfy the indications of replacing the loss of blood and cleansing the organism. There should be injected at one time at least from 40 to 50 c.cm. (from ten to thirteen drachms), and the injection should be repeated whenever the return of the condition demands it. The injections should be given as soon as possible.—*The New York Medical Journal.*

NOTE ON THE TEMPERATURE CURVE OF ACUTE CROUPOUS PNEUMONIA IN CHILDREN.*

BY CHARLES GODWIN JENNINGS, M.D.,

Detroit, Mich.

I present to the Society charts of the temperature, pulse and respiration of five successive cases of acute croupous pneumonia that have come under my observation during the past year. The

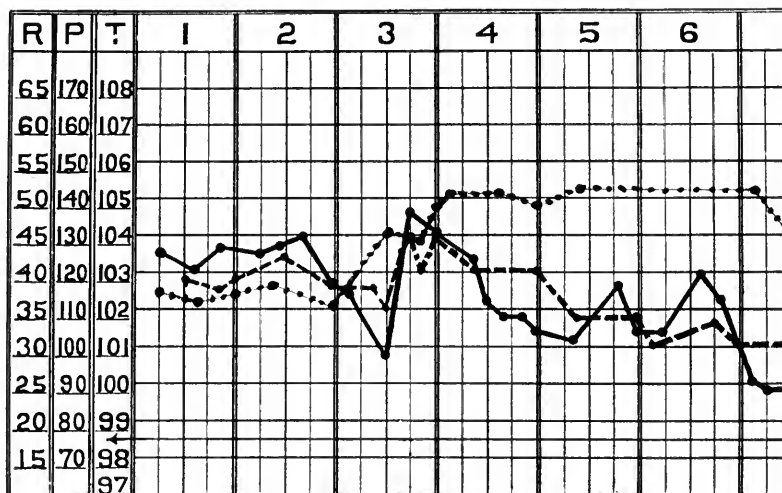


CHART I.

cases were all in private practice, and were under the care of educated nurses from the inception of the disease. In no instance was the temperature influenced by antipyretics. The charts illustrate a sharp remission in temperature that I have frequently noted in the first two or three days of the course of the disease in children, and which, in cases with tardy development of physical signs, has been a very confusing element in diagnosis. A number of times I have been misled by this unexpected drop, and have had my attention directed for a few hours away from the lungs. The recognized typical temperature curve of croupous pneumonia

* Read before the American Pediatric Society, Boston, May 26, 27, 28, 1902.

shows a sharp rise at the onset of the disease, and but slight variations in the curve until the crisis or pseudo-crisis.

In these charts, the heavy line is the temperature curve, the line with dashes is the pulse curve, and the dotted line the respiration curve.

CHART I.—A typical case of croupous pneumonia in a boy aged four years. Infection of the right upper and middle lobes. Crisis at the end of the sixth day. At the end of the second day the temperature dropped from 104° F. to 100.6° F. With this drop of temperature there was no marked change in the respiration or pulse

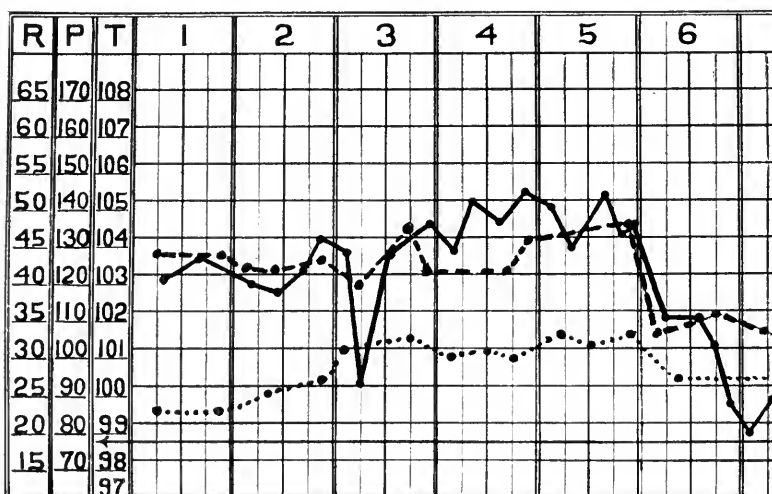


CHART II.

curve. At the end of the remission, however, both pulse and respiration sharply rose. The diagnosis in this case was plain from the first day.

CHART II.—Croupous pneumonia of the left apex, in a girl of five years. Crisis on the sixth day. Physical signs of incipient pneumonia present at the end of the first day. At the end of the second day or beginning of the third there was a drop in the temperature from 103.6° F. to 100° F. No corresponding drop in the respiration and pulse curves. As will be seen from the chart, the respiration in this case did not show the usual rapidity. For the first two days it did not rise above 25, and the maximum during the course of the disease was 32.

CHART III.—Acute croupous pneumonia in a girl three years of age. The appearance of the physical signs in this case was

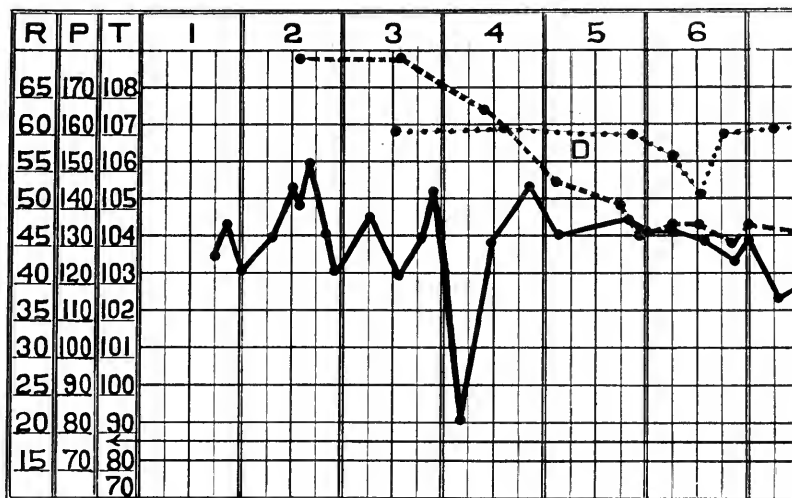


CHART III.

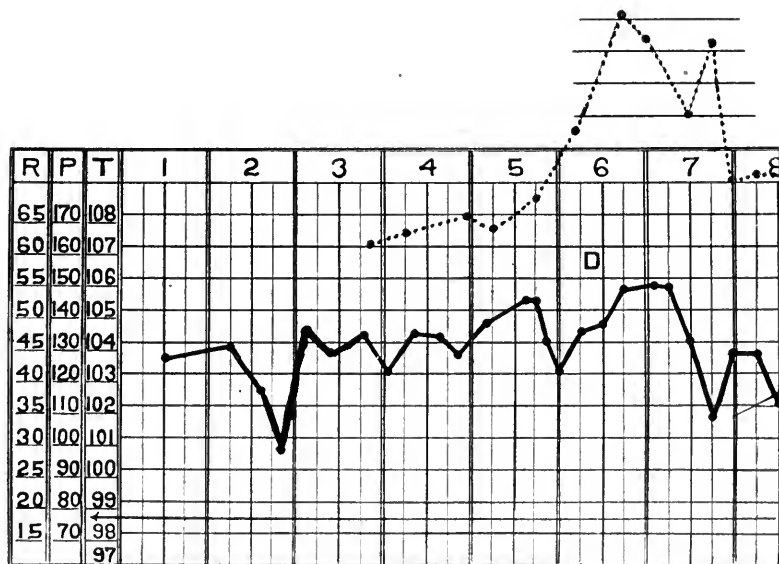


CHART IV.

delayed until the fifth day (marked on the chart "D") and a diagnosis was not made until this time. The patient was under

the care of another physician, who was completely misled by the remission that came on the third day. The temperature then dropped from 105.2°F. to 99°F. This case terminated in lysis, and convalescence was protracted.

CHART IV.—An infant aged one year. Infection of right apex. Crisis on the eighth day. At the end of the second day the temperature dropped from 104° to 100.6° F. The case occurred in July, and was diagnosticated as acute gastroenteric infection. The drop in the temperature on the second day was the

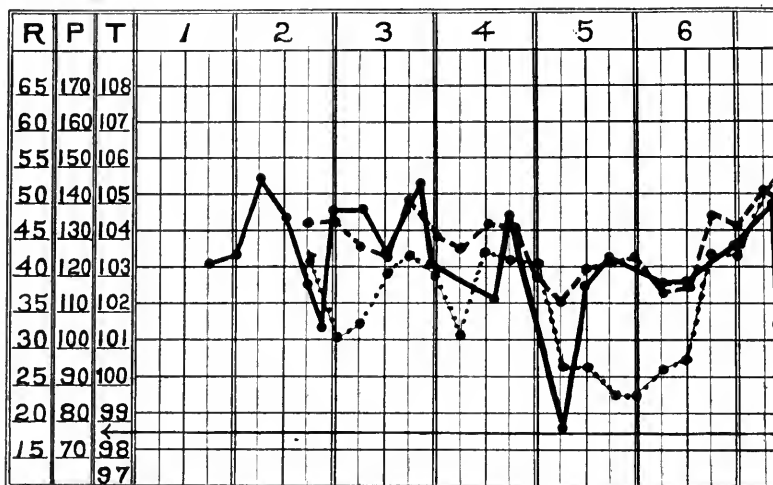


CHART V.

cause of the confusion in diagnosis, and the diagnosis was made by the physical signs on the sixth day.

CHART V.—A boy, aged five years. Infection of right lower lobe. A sharp remission at the end of thirty-six hours, the temperature dropping from 104.5° to 101.2° F. The drop in the temperature and the general amelioration in the symptoms that came with it threw me completely off the track of pneumonia, and the diagnosis was not made until the following day. The physical signs appeared on the fourth day. A pseudo-crisis came on the fifth day with a corresponding drop in respiration. The case terminated in empyema, with recovery.

In 3 of these cases, then, the sharp, early remission in the tem-

perature confused the diagnosis, that in 2 cases was corrected only by the late appearing physical signs.

DISCUSSION.

DR. MORRELL.—As I look at these charts I can recall that it is not an uncommon occurrence to see this temperature drop during the first three or four days of a pneumonia. It is a fact that may be of use to all of us where the diagnosis is obscure and I thank Dr. Jennings for calling our attention to it.

Antipyresis in Children.—E. W. Saunders (*St. Louis Courier of Medicine*, December, 1902) thinks that the urgency of antipyresis depends on the concomitant symptoms, and not on the height of the mercury alone, but that even moderate temperature in comparatively mild disease should not be entirely disregarded, if suffering is caused. Hydrotherapy takes first place in its relief, but in many cases it is advantageous to combine the external and internal antipyretics. This combined method is not sufficiently employed. He does not object to the use of coal-tar products, if given occasionally with full recognition of the fact that they are depressing in their action. They are contraindicated wherever the heart is liable to fail, as in diphtheria and pneumonia, though in the early stages of scarlet fever and other exanthemata they are not harmful, and the relief they afford will generally justify their use. In influenza some cardiac stimulation should be added. He calls attention to the value of pilocarpin as an eliminant and antipyretic in diphtheria and scarlet fever. In pneumonia, *veratrum viride* is the safest antipyretic and its general neglect is undeserved. The external application of *guaiacol* is another antipyretic; just how it acts is still unsettled. He has found it exceedingly valuable in infants and children, for in pneumonia many cases do not bear cold baths well, and then the external application of this drug is indicated. In typhoid fever, and especially in tuberculosis there should be no hesitation in its use. With care there is little danger of its producing depression. In some cases one drop is sufficient, in others several are required. Hydrotherapy should be employed with judgment in its application. Some children take the full bath nicely, and others become very chilly and do not react promptly. For general use the wet pack is most likely to agree.—*Journal of the American Medical Association.*

A CASE OF PNEUMONIA, PROBABLY DUE TO STREPTOCOCCUS INFECTION.*

BY WALTER LESTER CARR, M.D.,
New York.

The history of this case of pneumonia is unusual in the family record and the temperature range.

M. F., a female infant of eight months was seen in consultation with Dr. Leonard S. Rau, on April 15, 1902. The notes furnished me by Dr. Rau are as follows:

FAMILY HISTORY.—Parents American, in good health. Two brothers of the patient *act.* eight years and four years and six months are well and strong. The paternal grandfather died of general sepsis, the result of a cut on the tongue received in sealing an envelope. A paternal aunt had an attack of acute osteomyelitis of the femur develop after a slight operation on the nose. She ultimately recovered after a severe septic state with meningitis and pericarditis. The history of her case was reported by Dr. Howard Lilienthal in the *Medical News*, July 17, 1897. An uncle had an attack of erysipelas which ended in recovery.

PREVIOUS HISTORY.—The baby was bottle fed with fresh cow's milk diluted, and was in excellent health until six weeks before her present illness, when she weighed 17 $\frac{1}{4}$ pounds. At that time she had a foul smelling discharge from the left ear which was relieved by irrigations of creolin solution. One week before the illness here recorded the baby was restless and feverish. The discharge from the ear returned and she was seen by Dr. A. N. Strouse who found that there was a purulent discharge coming from the auditory canal and also some discharge from the nose. The tympanum showed a small perforation. The nasopharynx contained a few soft vegetations which were easily broken with the finger. Three days later the baby was again seen and the ear found to be doing well, but the other tympanum was congested. The drum was perforated and a drop of bloody serum exuded. The nasopharynx was clear and the nares were not discharging.

On the following day both ears seemed well. Although the

* Read before the American Pediatric Society, Boston, May 26, 27, 28, 1902.

patient had had a restless and feverish night nothing in the examination of the ears accounted for it and the temperature was $98\frac{5}{10}^{\circ}\text{F}$.

In the interval between the two attacks of inflammation of the ears the baby had a laryngeal seizure of a croupy type which lasted about forty-eight hours. She continued to take food and did not show symptoms referable to other organs.

PRESENT ILLNESS.—April 12, 1902. The rectal temperature in the morning was 105°F . The baby was restless all night and did not sleep. After a rectal irrigation the temperature was 99.2°F . No result from irrigation.

April 13th. The baby had a bad night. Morning temperature in rectum 104.2°F . Afternoon temperature 98.6°F . Irrigation of the intestine did not bring away undigested material or mucus.

April 14th. Baby had a more comfortable night. Morning temperature 102.4°F . Negative results in the examination of organs.

April 15th. The night was a restless one without sleep. Morning temperature 106°F . in the rectum. Examination of lungs negative except for a small area of dullness over the base of right lung in posterior axillary line. A few fine crepitant râles present. No cough.

When I saw the baby she was pale and cyanotic with a pulse of 148 and respiration of 32. This disproportion in the ratio was observed through a great part of the illness. The liver and spleen were normal and the baby's nutrition and general vitality were remarkably good. No cerebral symptoms were observed.

The patient was carefully nursed and was seen in consultation by Drs. A. Jacobi and I. Adler. The history of the case is best shown in the chart (See Chart) but a few explanatory notes may be added.

On April 18th, Dr. F. E. Sondern got a culture from a throat swab and found colonies of streptococci and of Friedlander's pneumococci. In view of the rapid rise and fall of temperature and because he detected a slight enlargement of the spleen, Dr. Jacobi examined the blood for plasmodium malarie but the results were negative. Unfortunately, blood cultures were not taken as the baby's collapsed condition when Dr. Sondern made his visit and family reasons prevented.

The Urine by catheter contained albumin and granular casts, with epithelial detritus from the kidneys.

From the detection of the pneumonic process on April 15th to the time of the baby's death on April 25th, the disease progressed steadily. The small area of inflammation in the right lung was followed by similar patches in the left base. At first these areas were confined to the lower part of the lungs but later the upper lobes became involved and the dullness showed that the patches coalesced. The percussion note over the anterior part of the chest was resonant for some days after the dullness in the axillary and suprascapular regions was noted. The cough was not especially irritating.

The Respirations were as low as 30 and as high as 80. The latter was counted only once or twice. The respirations were 44 with a temperature of 106° and 32 with a temperature of 98.6°, while with a temperature of 107.2° on April 18th they were 48. Late in the disease the respirations were often labored and showed a Cheyne-Stokes' character.

The Temperature had a regular rise after the evening of April 15th, with the maximum temperature in the early morning and the minimum in the afternoon. The highest temperature recorded was at 3 A.M. on April 18th, when it reached 107.2°F. in the rectum. A normal temperature was recorded on April 17th, 18th and 19th, about midnight, when it would begin to rise to the morning acme. During the periods of high temperature the baby was blue and very uneasy.

After April 20th, the temperature was more irregular and the pneumonic signs were easily detected. Each rise of temperature seemed co-incident with an extended involvement of the lungs.

The Pulse Rate varied between 116 and 180. It was usually of a good quality, but at times it was fluttering and irregular in force and frequency. The tension was low. The highest pulse rate was after midnight when the weakness and general cyanotic state were such as to require the most energetic stimulation. She would perspire freely when asleep.

The Nervous System was not especially excited during the course of the disease. Early in her illness the baby was quiet and playful except when in pain from her ears. Later in the illness she was restless, moaned and tossed herself from side to side. The reflexes were slightly exaggerated and there were twitchings of the hands.

Slight strabismus of a transient character was noted. The pupils were usually normal but were also observed to be dilated.

The Digestive Organs gave little trouble for the first days of the illness. The baby enjoyed her milk and took it well. She had slight abdominal distention. Later in the course of the disease the movements showed mucus and casein and there was considerable flatus. The abdomen became tympanitic. Coughing would cause vomiting of undigested masses of milk. The food was predigested and diluted according to the requirements.

The spleen was palpable for two days. It could be felt about one finger's breadth below the free border of the ribs. It did not become enlarged at the end of the illness. The liver was normal.

The Treatment in this case did not give positive results. The greatest comfort to the baby was from packs at a temperature of 70°F. and baths at 85°F. Alcohol sponging was also used.

Unguentum Credé, antistreptococcus serum and hypodermatic injections of quinin dihydrochlorid carbamate were unavailing, and no effect was produced by them. The antistreptococcus serum caused a great deal of discomfort and shock, which latter may have been a coincidence and due to the disease. Glonoin and strychnia were administered as indicated and oxygen was given as required.

No autopsy was allowed.

DISCUSSION.

DR. ADAMS.—How do you account for the periodical rises of temperature? It looks as though quinin might have done some good.

DR. CARR.—Quinin was given hypodermatically, but without effect. The blood was examined with negative results. The spleen was palpable for about two days. The pneumonic inflammation was the cause of the periodical temperature.

Internal Treatment of Tuberculous Peritonitis.—According to Comby (*Münch. Med. Wochenschr.*, October 7, 1902) the principal factors in the treatment are, rest in bed for weeks or months at a time, plenty of fresh air and sunlight through open windows with a southern exposure, and exposure in good weather upon a portable bed in the open air. The diet should consist of milk, eggs, raw meat, meat juice and purée soups. As regards medications, cod liver oil, with or without creosote, glycerin, and calcium phosphate are useful. In addition, clysters of creosotal and inunctions of the abdomen with iodine or green soap may be employed.—*Medical Review of Reviews.*

Clinical Memorandum.

A CASE OF RETROPHARYNGEAL ADENITIS AND ABSCESS; EXTREME MALNUTRITION; RECOVERY.

BY JOHN J. COTTER, M.D.,

Attending Physician, Out-door Department, St. Vincent's Hospital, New York.

I. R., a foundling infant, aged eight months, first came under observation December 8, 1901. He had been wet-nursed, but was



FIG. 1.—A CASE OF RETROPHARYNGEAL ABSCESS, MARCH 6, 1902.

very poorly nourished; the superficial cervical lymph nodes on both sides were moderately enlarged; he had a profuse nasal discharge and a mild bronchitis; he breathed with the mouth open.

December 20th. Bronchopneumonia developed, involving principally the right upper lobe. The adenitis and catarrh persisted.

Recovery from the pneumonic process was apparently complete, but the adenitis and nasopharyngeal catarrh continued.

On January 25, 1902, some adenoid material was removed from the vault of the pharynx and the breathing was better for a week or more, although mouth-breathing was still the rule.

February 14th. There was an increase in the size of the superficial and deep cervical lymph nodes on both sides. In front of the right sternomastoid muscle at its middle portion there was a small, soft, compressible swelling; internally a suggestion of induration in the right lateral pharyngeal wall could be

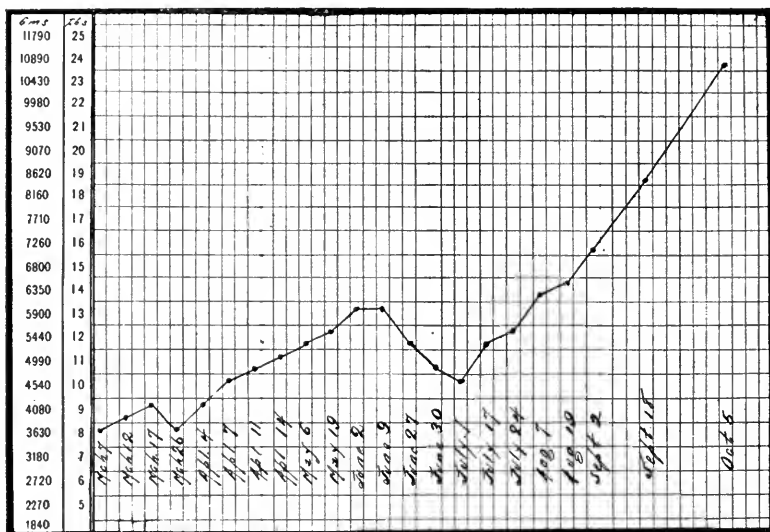


FIG. II.—WEIGHT CHART SHOWING RAPID GAIN ON MODIFIED MILK.

felt. The next day in consultation with Dr. David Bovaird, Jr., a diagnosis of retropharyngeal adenitis, possibly abscess, was established, and conservative methods were advised, because the infant was nursing well, there was but little respiratory embarrassment, the temperature was not above 100° F. at any time; there was no definite evidence of pus, and, finally, there was reason to believe that the inflammatory process might subside with the aid of medical measures.

March 5th. A swelling, the size of a small olive, was found in the right pharyngeal wall. The temperature was 100° F., the head was thrown back, the respiration was not particularly disturbed, and the infant could take nourishment fairly well.

March 6th. In the past twenty-four hours the tumor had

increased to the size of a large olive and was distinctly fluctuating; the temperature was 103.8° F., and the infant could not swallow. (See Fig. I.)

The abscess was opened with a guarded bistoury and one and one half ounces of pus evacuated. Digital examination found the vertebrae smooth and not involved in the process.



FIG. III.—SAME CHILD, OCTOBER 7, 1902.

March 7th. The temperature was 98° F., the throat was clean, the tumor had disappeared. Artificial feeding was begun, the proportions of the modified milk being approximately, fat 1.0, sugar 5.0, and proteid 1.0 per cent. His weight was eight pounds, five ounces.

May 6th. During the past two months the food had been increased in strength and quantity, so that the baby was taking forty-two ounces of a mixture containing fat 3.0, sugar 7.0, and proteid 2.0 per cent. in each twenty-four hours, with small

quantities of bread and milk, and broths in addition. There was an improvement in the general condition; the cervical lymph nodes had diminished in size and were hardly noticeable.

During the last week in June an attack of ileocolitis temporarily interfered with progress, but the subsequent improvement was steady and continuous (see Fig. II.), so that on October 5th, when the observations ceased, the weight was twenty-four pounds, four ounces; ten teeth were present; the baby could stand alone and was beginning to walk. (See Fig. III.)

This case is reported as of interest:

(1) Because of the slow course of the adenitis, which allowed about four months' observation, before going on to the formation of an abscess.

(2) To point out the relation, if any exists, between the pneumonia of the right upper lobe and the suppurative process in the right chain of retropharyngeal lymph nodes.

(3) To note the advantage in using modified milk, beginning with the lesser percentages of fat and proteid and increasing the strength of the modification as the infant's digestive powers improve.

Concerning Streptococci and Antistreptococcic Serum.

—Aronson (*Berlin Klin. Wochenschrift*, October 27, 1902) reviews the literature and reports his own experiments on streptococci and antistreptococcic serum. Cultures were obtained from cases of scarlet fever, diphtheria, erysipelas and acute rheumatic fever. While many of these microorganisms originally possessed different characteristics, yet after repeated inoculations these differences were lost. After much experimentation Aronson obtained a culture of streptococci that was fatal to the larger animals, and he was then able to obtain an antitoxic serum. His serum shows the phenomenon of agglutination which is seen in none of the other antistreptococcic serums. He concludes that a very close relationship exists between the different varieties of this microorganism. He assumes this fact to be true since the serum from the horse will immunize against all forms of streptococci. He hopes soon to prove the value of his serum in immunizing the human body against streptococci—*American Medicine*.

ARCHIVES OF PEDIATRICS.

APRIL, 1903.

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THE CARE OF FEEBLE-MINDED CHILDREN.

The term feeble-minded should be used to designate children who by reason of some defect in the structural development of the brain are incapable of a complete and intelligent use of their higher centres. Such children are emotional, easily moved by hypnotic and extraneous influences and are incapable in most instances of a sustained mental activity. Concentration of ideas and a fixed purpose are often wanting. For these reasons they are handicapped in the race with children of normal development and as adults they are especially liable to become charges on the community because they have no settled occupation. Most of these children are the offspring of depraved and vicious parents. They are born with a low vital force and their early environments are such that they drift away from the slight hold school has made

upon them into the streets and afterwards into reformatories and other penal institutions.

Many of the defective classes, the blind, the deaf, the epileptic, etc., are separated from their companions and given special instruction suited to their requirements, so that they compete on a fair footing with children who start out with a better equipment. In every city there are a large number of children who may justly be called feeble-minded and who by reason of this defect are unable to be self-supporting and who, in the majority of cases, become the wards of the municipality in almshouses and asylums.

In determining who are mentally feeble great care is necessary that a child who has an old otitis, one who is astigmatic or one who has adenoids is not included in this class. With modern methods of medical school inspection and oversight such mistakes should not be made, nor should any child be marked dull and of weak intellect until the general circulatory system has been examined by a physician to determine the presence of a cardiac anomaly or lesion.

There remain, however, defective children who are not astigmatic, who have no adenoids nor in fact any physical state that can be treated. What is to be done with these children? They are not able to go through the routine course of a public school, and they should not be forced into institutions, where by contact with criminals and paupers, they become companions and helpers of drunkards and thieves. Such children as are incapable of keeping up with normal children should be taught in classes by themselves, preferably in homes where they will come under the influence of healthy surroundings. As these children are often untruthful and mischievous, when not occupied, they should in every way be encouraged to keep in the open air. Physical development and an out-of-door life will do a great deal to lessen their irritability and will keep them at work when an attempt to put them at mental occupation indoors will make them morose and fractious. Both Séguin and Shuttleworth have made a strong plea for recreation and out-of-door life for defective children.

Manual training is suitable for those who have a bent towards

mechanics; but, in general, any outside occupation that can be carried on under supervision should be encouraged. New Jersey has a farm at Vineland that makes a report worth perusal by all who are interested in children of this class.

When past the age of childhood the feeble-minded should be under guardianship and should be directly controlled by the supervisors of the poor either in the country or city. Colonies under State aid should be provided so that these defective people will not become inmates of prisons and the parents of another generation of weaklings. That such restrictions should be imposed has recently been the subject of a paper by Mrs. Pinsent (*Lancet*, February 21, 1903), who has watched the feeble-minded and who writes that these children have no stated age when they can be considered grown up or treated as responsible adults. Her conclusions quoted here must be accepted by all who see feeble-minded children: "There can be little doubt that a thorough and complete system of State intervention would lead to a steady decrease in the number of the mentally deficient."

THE AMERICAN PEDIATRIC SOCIETY.

The American Pediatric Society will meet in Washington, D. C., on Tuesday, Wednesday and Thursday, May 12, 13, and 14, 1903, in affiliation with the Congress of American Physicians and Surgeons. The headquarters of the American Pediatric Society will be at The Raleigh. The President of the Society, Dr. J. P. Crozer Griffith, requests the members to send the titles of their papers to Dr. S. S. Adams, Washington, D. C., or to Dr. Wm. Osler, Baltimore.

THE AMERICAN MEDICAL ASSOCIATION.

The next meeting of the American Medical Association will be held at New Orleans, on May 5, 6, 7 and 8. The Section on Diseases of Children is in charge of Dr. John C. Cook, Chairman, 5708 Rosalie Court, Chicago, and Dr. Thos. S. Southworth, Secretary, 807 Madison Avenue, New York.

Bibliography.

L'Igiene Del Bambino. By Prof. Carv. Luigi Concetti, Direttore della Clinica Pediatrica nella R. Università di Roma. Illustrated. Pp. 630. Roma e Milano: Società Editrice Dante Alighieri, di Albrighi, Segati e C. 1903.

Prof. Concetti in his preface considers the high mortality among infants and children in Italy and takes the facts adduced as the reason for writing his work. He declares it his intention to write a book which, being neither austere scientific nor simply popular, may occupy an advantageous position among the many devoted to the subject. The small-paged volume includes 630 pages, divided into two parts. Part I. of 360 pages is devoted to alimentation and nutrition; Part II., of 240 pages, to general hygiene. While one may doubt whether the book can fulfill the purpose of a popular work, no physician interested in pediatrics can look into it without finding it of absorbing interest.

The first sections of Part I., treat of dentition, the size of the infant stomach, the development and digestive powers of the alimentary tract in infancy. The needs of the infant organism are compared in a striking manner with those of adult life. The methods of examining milk, the composition of milk, and the various methods of feeding, *i.e.*, maternal, mixed, artificial, etc., are described at length.

Dr. Concetti is distinctly a champion of maternal feeding, which he terms "excellent beyond all other" methods. In substitute methods of feeding modified cow's milk is given the first place, and it is interesting to note that, in the thorough discussion which follows, the work of Americans, especially Rotch, receives full recognition. It is unfortunate that the latter's name usually appears in the Teutonic guise of Rocht. In discussing the dangers of this method the author expresses the opinion, which he supports, that the frequency of the occurrence of tubercle bacilli in milk and the dangers therefrom have been exaggerated. Artificial foods are treated with unusual thoroughness, the list of foods including most of those familiar to American physicians.

Part II. opens with a consideration of cribs, clothing, etc. The hygiene of the eyes, ears, nose, throat and mouth receives necessary attention. The author protests against the barbarous custom of perforating the ears, which still continues, because of the supposed influence of the process in favor of the eyes.

Vaccination, circumcision, and the injection of antidiphtheritic serum have a place in a chapter on prophylactic methods. The period of immunity after the use of the antitoxin he gives as two or three weeks. Schooling is considered both in relation to the arrangements of the school-room and to the mental development of the child. For the care of the sick children of the poor the author recommends especially dispensaries and sanatoria. Sea-side sanatoria are recommended for the scrofulous and those suffering from surgical forms of tuberculosis. The economic side of this question is also given attention.

Throughout the book the author gives evidence of unusual acquaintance with the medical literature of both Europe and America and a thorough grasp of his subject and the work is consequently replete with instruction and interest.

The letter press of the book is good, but the illustrations are rather crude, and the volume would be much improved by an adequate table of contents.

Transactions of the American Orthopedic Association; Sixteenth Session. Vol. XV., with Appendix. Pp. xxxii.-454-216. Illustrated. Philadelphia: Published by the Association, 1902.

There are many topics discussed at the meetings of the American Orthopedic Association that are of especial interest to the pediatrician. In the present volume of Transactions there are papers on infantile paralysis, congenital dislocation of the hip, arthritis deformans, round shoulders and on other subjects that should be understood by every practitioner who treats children. Most of these contributions have appeared in the medical press and have been abstracted for ARCHIVES OF PEDIATRICS.

The volume is attractively printed and has an appendix of over two hundred pages, which gives the contributions to the literature of orthopedic surgery made during the year, and a list of the writings of members of the Society for reference.

Society Reports.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.—LONDON.

Meeting of January 16, 1903.

DR. G. E. SHUTTLEWORTH, CHAIRMAN.

DR. G. A. SUTHERLAND and MR. THOMSON WALKER read a paper on a case of

SYPHILITIC ENDARTERITIS AND NEPHRITIS IN AN INFANT.

The child showed signs of congenital syphilis, with paralysis and rigidity of the right arm, while the lower extremities became rigid and the head was retracted. There was albumin in the urine. At the autopsy there were found endarteritis of the cerebral arteries and softening of the left frontal lobe of the brain. There was diffuse interstitial nephritis. Another case of interstitial nephritis due to the same cause was also described. The authors considered that the most important change in this form of arteritis took place in the adventitia and that syphilitic arteritis was a secondary and not a tertiary manifestation of the disease. The etiology of nephritis in children was often obscure and the importance of syphilis as a cause was greater than was generally supposed. Many cases were probably unrecognized owing to the slight changes visible to the naked eye.

THE CHAIRMAN, in thanking the authors for their valuable contributions, suggested that members might compare their experiences with regard to interstitial nephritis occurring in subjects in whom there was reason to suspect hereditary syphilis.

DR. GEORGE CARPENTER related that a syphilitic female infant, aged five weeks, developed, while under observation, the signs of Bright's disease—symptomatic and microchemical. She was treated with mercury for some weeks and subsequently died. At the autopsy the kidneys appeared natural to the naked eye, but on microscopical examination definite changes of patchy distribution were found. There were interstitial and catarrhal

changes. The glomeruli also were large and over nucleated, and some of their capsules were thickened. He also gave a case of a syphilitic female child, aged six months, who developed extreme general dropsy, but was lost sight of.

DR. LEONARD GUTHRIE said he had felt special interest in the case of Dr. Sutherland and Mr. Walker because the views expressed by them bore out to some extent the ideas he had brought before the Society some two years ago. When describing a case of chronic interstitial nephritis in a girl aged seven, he suggested, though he had very little to go upon, that the condition might be due to syphilis, otherwise it was difficult to explain. In children it was almost impossible to attribute chronic interstitial nephritis to the ordinary causes—gout or alcohol; nor yet to post scarlatinal or parenchymatous nephritis. Acute interstitial nephritis in children might be fatal, but in less severe cases the subjects of it might live on to a considerable age, and ultimately die of granular kidney due to hereditary or perhaps acquired syphilis. He thought the argument was supported by statistics from lunatic asylums. It had been stated that at Colney-Hatch asylum 70 per cent. of the cases which died had granular kidney.

DR. ROBERT HUTCHINSON showed

SPECIMENS FROM A CASE PROBABLY SYPHILITIC.

A boy at seven was admitted to the London Hospital, with very large, dilated heart, and considerable albumin in the urine. He died two or three days after admittance. He showed signs of embolism in some of the large arteries, and had gangrene of the scrotum and one foot. At the autopsy, one kidney was found to be very shrunken, one and one-half inches in length, and the other appeared to be hypertrophied. There was no history of syphilis.

MR. THOMSON WALKER said the small kidney, in his opinion, was a non-developed organ, and it was likely that the heart changes were separate from those of the kidney. The speaker then showed a specimen of

TRAUMATIC CEPHALO-HYDROCELE.

The case was a boy of thirteen years, who received a blow on the head producing a scalp-wound. The wound healed rapidly, but some months later a pulsating swelling appeared at the seat of injury, having all the characters of a fluid swelling communicating with the interior of the cranium. After some years the

tumor diminished and finally disappeared. The boy died of scarlet fever. A scar about one inch in length was found in the scalp. The calvarium showed the following changes: An irregular gap about one and one-half inches long, varying in breadth from $\frac{4}{16}$ to $\frac{6}{16}$ of an inch, was in the line of the coronal suture to the left of the middle line. The inner half of the gap followed the coronal suture, the other half passing outward and backward into the left parietal bone. From the outer limit of this the remains of a repaired fracture could be traced for another one and one-half inches, where it again joined the coronal suture. This part showed almost complete repair on the outer surface, only two small gaps being left, but on the inner surface the attempt at repair was very slight. The edges of the large gap were smooth and rounded, the anterior edge being bevelled at the expense of the inner table, while the posterior was bevelled at the expense of the outer table. On the inner surface of the frontal bone there were numerous pits and depressions of varying size, apparently due to pressure. Beneath the gap in the cranium the dura mater was deficient and there was evidence of long-standing injury to the cerebral substance.

The condition was uncommon, and, when present, usually cured by pressure. It had been suggested by Hoenig that, if pressure or aspiration fail to relieve the condition, the bone should be exposed, the pericranium stripped up and stitched over the gap. This had apparently not yet been attempted.

MR. THOMSON WALKER also showed a specimen from a

PUNCTURED FRACTURE OF THE SKULL.

In this, long-standing middle ear suppuration had been present, and during life obscured the traumatic nature of the meningitis.

MR. SYDNEY STEPHENSON showed a case of

PARALYSIS OF THE LEFT CERVICAL SYMPATHETIC NERVE

in an infant, aged five months. The symptoms were typical, viz.: The upper lid drooped markedly, the pupil was small and did not dilate to darkness, the eye appeared rather shrunken, and the intraocular tension was lowered. A puckered scar lay about one inch above the outer third of the left clavicle immediately behind the posterior border of the sternomastoid muscle. The history of the case was most instructive. Eighteen days before the child

fell under his observation, the baby was brought to the North-Eastern Hospital for children, suffering from a large and hard swelling in the left side of the neck. An oblique incision was made over the swelling and a deep abscess opened by Hilton's method. It extended to the mucous membrane of the pharynx, which led to the diagnosis of a retropharyngeal abscess. No bare bone could be felt. The eye symptoms had followed closely upon the opening of this abscess.

DR. CAUTLEY asked whether there was any difference in the blood vessels on that side or any difference in the function of sweating on that side.

MR. STEPHENSON, in reply, said he would try to get the parents of the child to attend with it at the next meeting. He had observed no difference in the blood vessels of the two sides of the face. The mother assured him that the baby never sweated.

DR. LEONARD GUTHRIE showed

AN INFANT, AGED FIVE MONTHS, WITH MICROCEPHALY, with unusual maldevelopment of skull. The frontal bone was small, narrow and retreating, the superciliary ridges, zygomas and temporal ridges were unduly prominent. The interfrontal suture was marked by a long ridge. The parietal bones were small and the left overlapped the right. No anterior fontanel could be felt. The occipital bone showed a beaklike projection, and overlapped the two parietal bones. Thus the deformity of the skull seemed to be secondary to ill development of the brain. The child's features were normal and did not suggest imbecility. No other deformity was present, but there was general spasticity of all the limbs. The arms were flexed and the fingers clinched, so that the nails had abraded the skin of the palms. The lower extremities were rigid, and the reflexes exaggerated. No history of similar or of any congenital deformities in other members of the family. Such cases, he believed, were freaks, and their etiology was unknown. Operations, he agreed, were useless, but sometimes craniectomy might relieve when signs of premature ossification of sutures and consequent cerebral pressure existed.

MR. TUBBY related some experience with such cases, and, so far as he was able to judge, considered craniectomy quite powerless to alter the condition.

Dr. CHARLES W. CHAPMAN read a paper upon a case of
DILATATION OF THE STOMACH IN A GIRL AGED EIGHT YEARS.

The patient was unusually bright and intelligent. She had been accustomed to unsuitable food and irregular meals. The father was healthy, the mother neurotic. The mother had noticed the child's health to be failing for the last two years. Early in 1901, while the child was having a dancing lesson, splashing was heard on succussion and palpation. Upon alteration in diet, medicine and reduction of lessons, the child recovered completely.

Dr. SUTHERLAND said it was that class of case which was associated with cyclic albuminuria. Children of nine to thirteen years had a tendency to weakness of all the abdominal organs.

Dr. GEORGE CARPENTER read notes of a case of

ACUTE PRIMARY THYROIDITIS UNASSOCIATED WITH SPECIFIC
SYMPTOMS

in relationship to the gland, in a rickety infant, aged fourteen months. The gland suppurated, was surgically treated, and healed. He called attention to the rarity of the condition, even when starting as a complication of the specific fevers, and pointed out that in some reported instances induration of the gland and not suppuration had resulted as a sequence of inflammation.

The Results of Credé's Prophylactic Treatment of Ophthalmia Neonatorum.—Runge (*Berliner Klin. Wochenschrift*, May 19, 1902) has collected statistics on the results of instilling a 2 per cent. solution of argentic nitrate in the eyes of the new-born, as a prophylaxis against ophthalmia neonatorum. In a series of 1,917 cases not a single case of early infection was observed, and only three babies developed a late infection near the end of the second week. About 20 per cent. of the mothers were affected with gonorrhea at the time of delivery. The essential factor in the treatment consists of instilling the solution as soon as possible after the birth of the child. In these cases the 2 per cent. solution never caused any marked irritation of the eyes, but such appearances have been described by other writers, who now employ a weaker solution and obtain equally satisfactory results. In a series of 600 cases treated with a 1 per cent. solution, there was not a single early infection, and only one case of late infection.—*Therapeutic Gazette*.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, Tuesday, January 13, 1903.

DR. SAMUEL MCCLINTOCK HAMILL, PRESIDENT.

DR. THEODORE LE BOUTILLIER presented a girl nine years of age with

ANEURISM OF THE ARCH OF THE AORTA.

The child's family history was negative. She was said to have had an attack of pertussis when nine days old, and another at the age of three years. She had also had rheumatism at four. The symptoms consisted chiefly in vague joint pains, principally in the right wrist, with cough, which was rather brassy in character. Physical examination showed pallor without cyanosis. The superficial veins of the thorax, the face and the extremities were distended. There was marked pulsation in the vessels of the neck and in the suprasternal notch. A thrill, systolic in time, was present over an area extending an inch and a half from the sternum on each side, beneath the clavicles. Tracheal tug was present. Dullness was found over an area reaching half an inch on each side of the sternum, and beneath the sternum in the first interspace. The cardiac dullness extended from half an inch to the right of the sternum to just beyond the midclavicular line. A loud, rasping, systolic murmur was present. It was best heard over the area of dullness, but was transmitted over the chest both anteriorly and posteriorly. This murmur obliterated the first sound. At the mitral area there was both a presystolic and a systolic murmur.

The speaker showed

SKIAGRAPHS OF A NORMAL THORAX AND OF THE THORAX OF THE PATIENT EXHIBITED.

The latter showed an abnormally large shadow of the heart, while the shadow in the region of the aorta was very much broader than in the normal case, and extended distinctly beyond both sides of the sternum. The speaker referred to the literature of the subject, and noted the fact that only 58 cases of aneurism had been found in early life, that is, up to the twentieth year.

DR. J. P. CROZER GRIFFITH said that he was without personal experience in aortic aneurism in children. He referred to Dr.

Jacobi's article on various forms of aneurism in early life, in the Transactions of the American Pediatric Society, in which there are, in all, 28 or 29 cases collected from medical literature; and to Dr. Keen's earlier paper, in which there are also a number. Referring to the case exhibited, Dr. Griffith said that he felt that the diagnosis of aneurism was certainly the most probable one; and yet, that there must be some doubt attached to it, in the absence of absolutely positive symptoms. He recalled very distinctly a case in a girl less than twenty, in which the diagnosis of aneurism seemed beyond question, there being some extremely positive symptoms, yet in which autopsy showed no affection of the aorta, except narrowing and insufficiency at the aortic valve.

It was true that the contrast between the skiagraph of the case exhibited and that of the healthy child was very evident, and that some explanation must be given for the opaque area visible. There was, of course, a question whether this was produced by an aneurism or by some growth, such as enlarged glands, an enlarged thymus, or the like. If one skilled in medical skiagraphy considered the appearance as characteristic of aortic aneurism, then Dr. Griffith felt that the concluding evidence in proof of the existence of this condition had been supplied.

DR. DAVID RIESMAN referred to a specimen of sacular aneurism of the ductus arteriosus that had been obtained at autopsy from an infant in the University Hospital. It was, of course, a congenital condition, the true origin of which was not determined. Dr. Riesman asked whether a fluoroscopic examination had been made in the case presented, as he thought that the results of such an examination would probably have been more distinctive than those of the skiagraph, inasmuch as with the fluoroscope an expansile pulsation might have been observed.

DR. A. A. ESHNER said that it seemed to him that the physical signs and the skiagraph indicated the existence of dilatation of the aorta at least, possibly with atheromatous changes, whether or not there was also rupture of one or more of the coats of the vessel.

DR. McKEE said that it seemed to him that our accepted methods of diagnosis led to one conclusion, viz., that the patient had aneurism. Reasoning inductively, the physical signs and symptoms suggested that diagnosis more certainly than they suggested any other; and the process of exclusion led to the same result. The substernal dullness exhibited a regular outline, and not

the irregular area of dullness that one finds with sarcoma or other conditions involving the mediastinal lymph nodes. The skiagraph also showed a regular shadow much larger than that seen in the x-ray picture of the normal child's thorax, and corresponding accurately with the position of the transverse portion of the aortic arch.

He did not think that the mere fact that the condition was rare should deter one from making the diagnosis; it should simply make one cautious.

DR. EDSALL said that one condition that might produce the physical signs present had not been mentioned, and he thought that this should be seriously considered in the diagnosis. This condition was a mediastinopericarditis. There was no difficulty in explaining by this diagnosis all the physical signs present, except, perhaps, the conditions in the skiagraph. Even the skiagraphic picture, he thought, could be furnished by the results of a mediastinitis. He referred to a recent report by Kuckein of 2 cases of carcinoma of the esophagus in which practically all the most important signs of aortic aneurism were present, while typical signs of carcinoma of the esophagus were absent. In both cases there was even an enlarged shadow in the region of the aorta, and this was seen to have an expansile pulsation. This sign, however, proved to be due to the fact that the aorta had been thrown out of its course by the mass and lay in direct contact with the tumor at the external surface. The shadow, then, was made by the aorta and the tumor together, while the expansile pulsation was given by the dislocated normal aorta; but the conditions were indistinguishable from those found in aneurism. It would seem entirely possible for a similar condition to be present in a case like that shown. Mediastinitis could readily cause displacement of the aorta, and a consequent appearance like that in the skiagraph. This seemed somewhat more probable in this case, as there was apparently a slight Broadbent's sign and as Dr. Le Boutillier stated that the cardiac dullness is not movable when the child shifts her position from side to side. Besides, the child had a history of rheumatism. Aortic aneurism could certainly give rise to the condition present more readily than could any other disorder; but, since a number of the most important signs of aneurism were absent, it seemed worth while to think seriously of the possibility of some other condition as the cause of these physical signs. The entire absence of severe and

more or less constant thoracic or referred pain, of changes in the pupils or in the voice, of any notable difference between the pulses, and of a strong tracheal tug, made a diagnosis of aneurism somewhat doubtful. Skiagraphy, while undoubtedly extremely important as a means of diagnosis, could not be considered to furnish absolutely final evidence.

DR. D. J. MILTON MILLER asked whether there was an expansile pulsation present upon bimalual palpation of the chest. He had attempted to elicit this sign, but had been unable to discover it. There was also an absence of accentuation of the second aortic sound. He thought that in an aneurism as large as the superficial dullness in this case seemed to indicate, it would be most unusual to have an absence of diastolic shock, and, especially, an absence of an accentuated second aortic sound. The two signs mentioned were extremely important signs of aortic aneurism; and Dr. Miller believed that accentuation of the second aortic sound, in particular, was a very reliable and constant sign of aneurism. While the conditions present in the case exhibited strongly indicated an aortic aneurism, the absence of the two signs mentioned made him somewhat doubtful as to the diagnosis.

DR. LE BOUTILLIER, in reply to Dr. Griffith's question as to the age, said that there were on record several cases of internal aneurism in infants, but that none of these were cases of aneurism of the aortic arch.

In answer to Dr. Edsall, Dr. Le Boutillier said that he believed that competent skiagraphers generally considered that the presence of a growth could usually be differentiated from aneurism by the difference in the shading of the skiagraph. As to the absence of many of the symptoms of aortic aneurism, this was a point of interest in such cases in children, as contrasted with aneurisms in adults. The absence of many symptoms was an extremely common thing in the reports of these cases in children. Of the cases that Dr. Le Boutillier has found in the literature, many showed almost no history of pain; tracheal tug was not mentioned in any instance; there was no unilateral flushing or sweating recorded; and in a large proportion of the cases definite signs of aortic aneurism were not present.

In reply to Dr. Miller, Dr. Le Boutillier said that an expansile pulsation had at times been present, and that the aortic second sound had often been found to be markedly accentuated.

THE NEW YORK ACADEMY OF MEDICINE.—SECTION
ON PEDIATRICS.

Stated Meeting February 12, 1903.

HENRY HEIMAN, M.D., CHAIRMAN.

DR. C. G. KERLEY presented

A REPORT OF A CASE OF PURPURA FULMINANS WITH BACTERIOLOGIC EXAMINATIONS.

The patient was a child who presented an abundant purpuric eruption. It was most marked about the wrists, hands and knees. There were bloody effusions under the skin with hematemesis and the discharge of blood from the bowel. The patient presented an extreme degree of emaciation. Cultures were taken from the blood clot in the nose and from the serum of the hemorrhagic areas and were examined by Dr. Martha Wollstein. She reported that the one from the nose showed a pure growth of the staphylococcus pyogenes aureus, as did also the one from the hemorrhagic effusion at the knee. A guinea pig died twenty-four hours after receiving an intraperitoneal injection of some of this material. There was no evident point of entrance for the infection.

DR. HENRY KOPLIK said that in 2 cases occurring in his hospital service cultures taken by Dr. Libman had proved negative. He thought little scientific value could be attached to the cultures in Dr. Kerley's case because of contaminations and the fact that some were taken postmortem.

DR. H. W. BERG said that the signs and symptoms presented by this case bore a striking similarity to those of hemorrhagic smallpox, as was also the fatal collapse. He was disposed to believe that the clinical picture of smallpox was a combination of an infection with the specific germ of smallpox and a purulent infection. If this theory were correct, then, hemorrhagic smallpox was simply a variety of that disease in which the pus infection was a predominant feature.

DR. KERLEY, replying to Dr. Koplik, said that if the staphylococci found in the cultures from his case were a contamination, they should not have existed there in pure culture.

DR. HERMAN SCHWARTZ read a paper on

BUTTERMILK AS AN INFANT FOOD,

which, he said, he had been led to lay before the profession in this country because of some excellent results that he had observed in foreign cities. The method was not one calculated to appeal to the mind of the American pediatrician, who was at the present time bending all his energies to the feeding of infants on food approaching as nearly as possible to breast milk. The following was the composition of the buttermilk food under discussion: Albumin, 34 per cent.; fat, 0.5 per cent.; carbohydrates, 10.3 per cent.; actual acidity, 0.3 per cent., or 0.5 per cent. of lactic acid. This food had been found beneficial in fermentative diarrheas. The high acidity retarded the growth of bacteria. The buttermilk was made from centrifugal cream which was infected with lactic acid bacilli and then kept in a warm room for eighteen hours before churning. In preparing the buttermilk food for infants, 15 to 25 gms. of wheat, rice or prepared flour should be added to one liter of the buttermilk and 35 to 55 gms. of cane sugar. After boiling the mixture for five minutes, it was strained through a sterile cloth and kept on ice in sterile bottles. On first beginning this food some children developed a slight fever, but it invariably passed off in a day or two, and was of no significance. Infants so fed had smooth, pasty stools of a neutral or alkaline reaction, and containing very few proteolytic bacteria. This buttermilk food acted very well in cases of fatty diarrhea and in intestinal disorders after the acute stage had passed. The casein of the buttermilk existed as very fine flocculi, making it easily digestible.

DR. KOPLIK observed that the presentation of a paper on this subject was an excellent illustration of how unsettled was the subject of infant feeding. He had seen the buttermilk food used abroad at Finkelstein's institution and elsewhere, but had come to the conclusion that those who were using it had not yet formulated very definite indications for its employment. The small percentage of fat in this food would explain its beneficial action in infants who had been disturbed by an excess of fat in their food. The high acidity was desirable in cases of mycotic diarrhea. At the present time it was difficult to obtain here a good preparation of buttermilk.

DR. C. HERRMAN argued that as this food had been employed for so many years in Holland it must have more than a theoretical value. His experience with the food here was that some children would not take it, and that parents were averse to giving it to their babies.

DR. BERG said that one of the advantages claimed for this food was its cheapness, thus bringing it within the reach of the poor. If, however, we were to imitate the method used abroad of obtaining the buttermilk from cream, it would be found to be really a very costly food. As the carbohydrate in buttermilk was lactic acid, it did not appeal to him as a good food, for, if he desired to fatten an infant, he would not think of giving it lactic acid.

DR. SARA WELT-KAKELS said that she had observed the use of this buttermilk food in Germany, where it was chiefly employed in gastroenteritis and in badly nourished infants. She had been favorably impressed with the results she had observed, and would like to give it a trial here in the summer if the proper preparation was obtainable.

DR. J. E. WINTERS expressed himself as at a loss how to discuss the use of an infant food which he characterized as being thoroughly unphysiological. That it was unphysiological needed no extended argument, or else nature had grievously erred when she had put 4 per cent. of fat in human milk. It was well to note at the outset that all the babies treated with this buttermilk food had been previously made ill by physicians who had ignored physiology in the food prescribed for these infants. That the infants improved temporarily on the buttermilk food was not surprising when one considered that the food that had originally made them ill had been stopped and they were given better care. He did not hesitate to say that any physician who would go into an intelligent family in this city and recommend as an infant food a mixture of sour milk, flour and cane sugar would be pretty sure to lose that family. With regard to the digestion of fat, he wished to say that no baby could be successfully fed on a mixture of cream and milk, for they do not stay mixed; the proper food for an infant was composed of cream properly diluted.

DR. H. D. CHAPIN said that he did not understand that the reader of the paper had advocated this buttermilk food as a universal food for infants, but as one fitted for special cases, and it could not be denied that even the most scientific modification of

milk did not uniformly yield satisfactory results. It was probable that in a few selected cases, as, for instance, of milk indigestion, buttermilk might prove of benefit, and if it did so the reason was probably to be found in the fine coagulum produced by the action of the lactic acid.

DR. L. E. LA FÉTRA said that he had tested this buttermilk food last summer at the Nursery and Child's Hospital on children who had suffered from indigestion, despite the use of the ordinary methods of milk modification. The boiling of the buttermilk with flour was found to break up all the small curds that were previously seen to be in the fluid. Much difficulty had been experienced in securing a proper buttermilk, but far greater trouble had been encountered in finding children who did well on this food. In spite of this discouraging experience he thought the method logical, as it was well known that lactic acid was beneficial in some forms of infantile diarrhea.

DR. SCHWARTZ said that most of the physicians who had seen the buttermilk food given to infants in Europe were united in the opinion that it was of benefit in special cases. He had known some children do finely on the butermilk food for several months.

Bacteria in Butter.—In a recent article on "Bacteria in Food-stuffs," C. J. Lewis (*Scottish Medical and Surgical Journal*) says that the organisms present in butter may be regarded as likely to be of the same varieties as those in milk; but experiment shows that butter is not so liable to contain pathogenetic microbes. Prausnitz estimates that butter sometimes contains as many as ten to twenty millions of germs per gramme. Laser found that *Vibrio cholerae* may remain alive and virulent in butter for thirty-two days, and the typhoid bacillus for three or four weeks. The tubercle bacillus finds a suitable medium in butter, in which it may remain virulent for twelve days according to Heim, and even up to ninety days according to Moore. Butter made from the milk of a cow with tubercular udder produced the disease in a rabbit; and though there is no evidence that tubercle has been spread to man by butter, there is ground for suspicion in the fact that in Germany some 30 per cent. of the samples analyzed contained the bacillus. Klein, however, recently tested samples of butter from Normandy, Brittany, Ireland, Australia, France, and Dorset, using as much as a quarter of a pound of each of twelve samples, and failed to find in any instance the tubercle bacillus or either variety of the *B. pseudotuberculosis*. The staphylococcus aureus was present, however, in one sample.

Current Literature.

PATHOLOGY.

Koch, R.: The Transference of Bovine Tuberculosis to Man. (*British Medical Journal*. December 20, 1902.)

The paper is a translation of the address delivered by Koch at the International Conference on Tuberculosis in Berlin on October 25th. The argument is, as follows:—The statistics of primary intestinal tuberculosis, thus far collected, are too uncertain and contradictory to throw much light upon the question. As examples the writer cites the fact that among 369 children in New York, according to the data collected by Bovaird, there was but 1.4 per cent. of primary intestinal tuberculosis; in Boston, on the other hand, Councilmen finds it in 37.1 per cent. of sixty-five children dead from diphtheria. Similar contradictions are found in the reports from England and Germany.

A year and a quarter ago, through governmental agencies, an invitation was sent to the heads of the university clinics in Prussia and also to the directors of the Institute of Pathological Anatomy of the Prussian Universities to report to Koch any cases of tuberculosis of the intestines, mesenteric glands, or peritoneum, in which the onset of the disease might be traced to the use of food affected by *Perlsucht*, either from the histories of the disease or special facts ascertained. Not a single case has so far been brought to his attention.

The cases of local tuberculosis of the skin occurring in veterinary surgeons, butchers, etc., as a result of infection from handling tuberculous cattle, are then taken up and none of them found to withstand critical consideration.

The question of possible infection from the ingestion of tuberculous milk or meat is then taken up. The writer contends that if such infection occurs, it should follow the type of other food affections, in that a number of persons in a family or in a given locality should be affected at or about the same time. He then critically reviews the few reports of such character to be found in literature and finds that none of them bears searching analysis. He concludes that the injurious effects of milk infected with *Perlsucht* and its products are not proven.

Geipel, P.: Situs Transversus and the Transposition of the Large Vessels of the Heart. (*Archiv. f. Kinderhk.* Vol. xxxv. 1902.)

The case of a still-born, eight months fetus is detailed. The heart lay two-thirds in the right half of the thorax. Its auricular septum was rudimentary, so that there was practically but one auricle. There was a defective ventricular septum, absence of the ductus arteriosus, and the pulmonary artery arose behind and to the right of the aorta. The spleen and stomach were situated in the left side of the abdominal cavity and the appendix was also on the left side. The left lobe of the liver was larger than the right. The vascular system showed several abnormalities, persistence of the left umbilical vein among them.

In another case which lived two days, there was partial situs transversus, the stomach and spleen being found in the right hypochondrium, the colon on the left side, and volvulus with multiple obliterations of the small intestine. The heart was normal. A review of the literature is given.

Baron, C.: Angina Exudativa Ulcerosa (Angina Vincentii or Angina Diphtheroides.) (*Arch. f. Kinderhk.* Vol. xxxv., 1902, p. 161.)

Thirty-eight cases were studied, ranging over a period of three years. Twenty-three patients were boys and fifteen girls. The tonsils were covered with spots of white or grayish, adherent exudate, occasionally spreading to the uvula and soft palate. On removal, an ulcer with irregular edges became visible, and the base bled easily. Cervical lymph nodes became tender, but not enlarged, and there were no constitutional symptoms. The diagnosis of diphtheria, suggested by the exudate, was proved wrong by the absence of Klebs-Löffler bacilli from the cultures. The disease was mildly infectious, of rather long duration, not influenced by any special form of treatment, and relapses were fairly common. There were no other mouth lesions present in these cases, and uncleanness was not a causative factor.

Smears from the fresh exudate showed, in every case, a bacillus and a spirillum; cocci and other mouth organisms may be present later in the disease. The bacillus is fusiform in shape and very characteristic in appearance. Neither the bacillus nor the spirillum can be made to grow on ordinary culture media.

From these cases and from the literature, it seems that the combination of bacillus fusiformis with spirocheta is adapted to the causation of a characteristic, exudative, ulcerative angina.

Bythell, W. J. S. : Empyema: A Contribution to Its Bacteriology. (*The Medical Chronicle.* November, 1902, p. 81.)

Forty successive cases of empyema in children were examined bacteriologically, with the following results:—Streptococcus alone 2 cases (5.0 per cent.); streptococcus and staphylococcus 1; streptococcus and pneumococcus 1; pneumococcus alone 26 (65.0 per cent.); other mixed pneumococcic cases 9 (22.5 per cent.); and Friedlander's bacillus and staphylococcus 1. The writer's conclusions are as follows:—

(1) Empyema is common in children at all ages, and is decidedly more frequent in boys than in girls. The disease resembles pneumonia in being more prevalent in spring and early summer.

(2) The pleura is infected in the great majority of cases by a process of direct invasion from a pulmonary lesion; the latter is usually a catarrhal pneumonia in children. In many cases which are apparently "primary," the source of infection is probably also an undiscovered patch of bronchopneumonia.

(3) The microorganism which is by far the most frequently present in the empyema of children is the pneumococcus.

(4) The clinical results of empyema depend to some extent upon the species of bacteria found within the pleura, the pneumococcic cases being on the whole the mildest. This microorganism may, however, give rise to very serious complications, either by the direct invasion of surrounding viscera or by metastatic infection.

(5) The bacteriological examination of the pus gives other indications as to the clinical prognosis which appear to be of considerable value: (a) a small number of poorly-stained microorganisms which give feeble cultures usually denotes a good prognosis; (b) the reverse condition is not so frequently accompanied by severe clinical symptoms, especially when phagocytosis is well marked; (c) vigorous cultures are not in themselves a reliable sign of pathogenic activity.

(6) The bronchial nodes are probably invaded by microorganisms from the pleura cavity in every case of empyema. The

organisms are sometimes also found after death in the mesenteric nodes.

(7) With the exception of those cases in which there are tuberculous lesions of the pleura or lung, the best results may be expected from the resection of a rib with free drainage of the pleural cavity.

MEDICINE.

Barten, C. F.: A Case of Multiple Ulcers in the Stomach of a Child. Sudden Death. (*Brooklyn Medical Journal.* December, 1902, p. 519.)

A boy of ten years, after an indefinite illness of three or four days, suddenly developed symptoms of collapse and died within two hours. The autopsy showed four ulcerated areas in the wall of the stomach, two of which had perforated, one was serpiginous in outline, and the other one was clean cut and extended into the muscular layer.

Jardine, R.: Traumatic Keratitis in the New-Born. (*The Scottish Medical and Surgical Journal.* December, 1902, p. 508.)

Five cases are reported, in which, after difficult deliveries, especially forceps-cases, a more or less general keratitis was found in the newly-born. Traumatism during the delivery is regarded as the cause of the eye trouble. The condition seems not to have been previously described.

Batten, F. E.: Acute Poliomyelitis and Encephalitis. (*Lancet.* December 20, 1902, p. 1677.)

Under the name acute poliomyelitis and encephalitis is described a group of cases, which, although they present many clinical features which vary according to the part of the nervous system involved, are due to the same morbid and pathological process. These cases may for convenience be divided into three main groups. (1) Acute poliomyelitis superior, in which the frontal, motor, or occipital regions of the cortex are involved, and also in some cases the cerebellum. (2) Acute poliomyelitis inferior, in which the various nuclei of the cranial nerves are affected. (3) Acute poliomyelitis anterior, in which the gray matter of the anterior cornua below the medulla is the affected part.

The general symptoms of the affection, whatever its localization, are the same, fever, vomiting, general malaise, and pain in the head, back, and limbs. The local symptoms vary with the type of the affection. In the first group, loss of speech, loss of power of locomotion, etc., occur, with preservation of the power of the legs. In the second group are found paralysis of parts supplied by the cranial nerves, the lesion affecting their nuclei in the medulla. In the third group fall the familiar cases of infantile paralysis affecting the extremities.

As to the pathology of the disease there are, in general, two views. (1) That the affection is due to the definite specific affection producing an acute inflammation. (2) That it is due to a vascular thrombosis dependent on some altered blood condition, such altered blood condition being due to various causes and not to one specific affection.

That vascular thrombosis can cause the conditions of hemorrhage and perivascular exudation, which are found in these cases, has been proven by the work of Prevost and Cotard, to which Hughlings Jackson called attention. Furthermore, the localization and distribution of the lesions in the gray matter of the anterior cornua with their sharp demarcation can be readily explained by reference to the blood supply of these parts.

Nor does the acceptance of this suggestion preclude the possibility that the explanation of the altered blood state underlying the vascular thrombosis may be a specific infection.

Gottheil, W. S.: A Peculiar Case of Recurrent Bullous Eruption. (*Journal of the American Medical Association.* December 27, 1902, p. 1640.)

The patient was a girl, five and one-half years old, who in the fall for four successive years had had an outbreak of an eruption of blebs. In the intervals the skin was perfectly sound. There were no prodromal symptoms. The blebs appeared as small watery blisters which grew to some size, broke and discharged their watery contents, then healed. From time to time new blebs appeared and the attack was prolonged for weeks or months. Finally, the trouble ceased spontaneously. There were no other local symptoms accompanying the appearance of the blebs. The child was of normal size, and her general health good. The writer had much difficulty in reaching a diagnosis, but decided that it must be classed as a benign pemphigus.

Stiles, C. W.: A Case of Infection with the Double-pored Dog Tapeworm in an American Child. (*American Medicine.* January 10, 1903, p. 65.)

The worm in question is said to have been passed by a child, sixteen months old. On examination it proved to belong to the species *dipylidium caninum*, a very common parasite in dogs and cats, but comparatively rare in man.

Wanstall, A.: Pertussis, with Special Reference to Its Early Diagnosis from the Blood Findings. (*American Medicine.* January 10, 1903, p. 63.)

In 8 cases of pertussis in the catarrhal stage the leukocyte count varied from 4,228 to 34,667, an average hyperleukocytosis of 13,315. Of eighteen differential counts all but three show a higher percentage of mononuclear, than of polynuclear, leukocytes; the average being, polynuclear 41.4 per cent., mononuclears 55.4 per cent. There seem to be good grounds for concluding that an increased percentage of lymphocytes, at least equalling, or exceeding, that of the polynuclear leukocytes is a valuable diagnostic aid in whooping-cough before the characteristic symptoms make the diagnosis easy.

Seilikovitch, S.: Insusceptibility to Vaccination. (*American Medicine.* January 10, 1903, p. 50.)

A girl, six years old, had been vaccinated eight times without success. A ninth inoculation, made after the child had been tired out by fasting and exercise, proved effective. The explanation of this occurrence is sought.

Soles, Carbonell y F.: Two Cases of Ectopic Testicle. (*Archiv. Obstet. y Pediat. Barcelona.* November 10, 1902.)

In each of the 2 cases reported one testicle was found lodged in Scarpa's triangle. One of the patients was a boy of syphilitic ancestry, who died a few months after birth. There was a rudimentary little finger on the left hand, due to a congenital absence of two phalanges. On the right foot the little toe was absent and the fourth toe was rudimentary, consisting of but one phalanx. The right testicle was found in Scarpa's triangle looking like an enlarged lymph node.

The second patient was a boy, aged four years, with an

alcoholic ancestry. He had a dolichocephalic head, a protruding forehead, and a prominence like a keel at the sagittal suture. The vault of his palate was narrow and deeply arched, and his teeth were irregularly inserted. The little fingers of both hands curved inward toward the fourth finger, and the pisiform bones were very prominent. Carbonell y Soles concludes, from a consideration of these 2 cases, that ectopia of the testes is probably a stigma of degeneration.

Stowers, J. H.: Hydrocephalus in Congenital Syphilis. (*British Journal of Dermatology.* December, 1902, p. 476.)

The patient was a male child, aged ten months, with congenital syphilis, the younger of two children. He was first seen in hospital at the age of three months, and was the subject of a secondary dermatosyphilide, involving the arms, legs, body and face. The eruption, which was squamopapular in character, was said to have existed only a few days. In a week or two it entirely disappeared under treatment. The child was again brought to Dr. Stowers on the 16th of October of this year with a limited dermatitis of moderate severity existing about the buttocks and thighs, the result of local irritation. In addition, the child (who had for two months been getting dull and sleepy), "as if his head was heavy," was now the subject of an enlarged cranium with extensive dilatation of the superficial veins, due to hydrocephalic effusion probably of syphilitic origin.

Another child in the same family was under care for congenital syphilis at the age of four months. About two months after marriage, the mother had been the subject of an eruption of specific kind which disappeared under treatment.

Sadler, E. A.: A Family of Bleeders. (*The Birmingham Medical Review.* December, 1902, p. 354.)

The family includes five sons and five daughters. One of the sons, the youngest, shows the hemophylic tendency. The daughters are all quite well, but the four who have married have each transmitted the diathesis to their male children. The sons' children are all well, free from the affection. An analysis of the daughters' children brings out the following facts:—

There were in the second generation 8 boys and 5 girls. Three of the boys have been bleeders, 2 of whom have died from

hemorrhage at the age of 3 and 7 years, respectively, without showing the joint affection, while the third is, at the age of 14, almost a cripple from disorganization of the knee-joint. Those who suffered were the 1st, 11th, and 13th members of the family of 13. It is curious to note that the 12th has never bled, and is considered the most healthy of all the children, though the brothers born immediately before and after him had the tendency well marked.

The daughters are the 4th, 5th, 6th, 8th and 10th members of the family. They have had between them 15 children of whom 2 were girls who died in early infancy. Of the 13 boys, 9 have shown the hemophylic tendency. Two of these have so far had the joint affection only; 4 have had external hemorrhage without hemarthrosis, 3 of them dying from it just under the age of 2 years; the 4th being as yet barely 3 years old, and so at an age when the joint affection may yet develop. Three of the 9 have had both hemorrhage and hemarthrosis.

Garcin, R. B.: Secondary Hemorrhage of the Umbilicus. (*American Medicine.* January 10, 1903, p. 51.)

A healthy boy was born after a natural labor. There was no oozing from the cord after it had been tied. The cord separated on the sixth day, leaving a clean, healthy surface. This surface was dressed at 9 P.M. on the seventh day and there was no hemorrhage. Early the next morning the child was found to be bleeding freely from the umbilicus; and, although the bleeding was promptly stopped, the child died from the hemorrhage. The occurrence of hemorrhage so long after birth is regarded as unique.

Taylor, J. M.: Neurasthenia in Children. (*International Medical Magazine.* December, 1902, p. 705.)

The acquired form of neurasthenia, so common in adults, secondary to a large variety of exhausting conditions, is rare in children, but occurs with sufficient frequency to warrant attention. There are also many cases of feebleness or frailty, which, in essence, are instances of "nerve tire" and are the product of injudicious or unfortunate environment or upbringing so closely allied to hereditary causes that they cannot well be separated. Many of these cases will continue through life; a much larger number of them are capable of most satisfactory improvement.

The manifestations of neurasthenia in children are obvious enough, if rightly interpreted. They may take the form of undue fondness for one pursuit, such as reading, or a hypersensitiveness to external impressions, or an over strenuousness in play or work, a hypertension, or in other instances which are to be carefully discriminated from the last class, a hypotension.

The treatment of this condition requires the utmost care to all details of air, diet, exercise, etc. A modified form of rest cure is given in detail.

Bolton, Charles: Two Cases of Optic Neuritis in Diphtheria. (*Lancet.* December 13, 1902, p. 1624.)

The first case was a boy, four years of age. He had a severe faucial diphtheria, and in the course of treatment received 12,000 units of antitoxin. The throat cleared on the sixth day. On the fifteenth day he showed evidences of paralysis of the uvula, and some of the eye muscles, and the heart was irregular and feeble. On the twentieth day the discs were normal. On the thirty-second day there was paralysis of accommodation and there was some swelling of the optic disc and striation of its margin on the right side, while in the left eye the changes were still more marked. Six days later the exudation was more dense in both eyes, but especially in the left. After that time the changes subsided, and when discharged in the seventh week, the right eye was normal and the changes on the left side were slight.

The second case was a girl of sixteen years. She was said to have had an extensive faucial diphtheria and was not treated with antitoxin. She came under observation with difficulty of vision, paralysis of the ciliary muscle and palate, and some weakness in the limbs. The knee-jerks were absent. There was double optic neuritis, the swelling was slight, and there was some redness of the discs. The neuritis disappeared after two months.

Meyer, A. H.: The Gastric Secretion of Infants. (*Archiv. f. Kinderhk.* Vol. xxxv. 1902.)

It was impossible to find any constant differences in the gastric secretion of healthy infants, artificially fed, and those with gastrointestinal catarrh. The acidity and the amount of pepsin was less in infants than in older children and in adults. In certain diarrheal cases subacidity or anacidity was found independent of the fever,

and hyperacidity may occur in one form of chronic gastrointestinal catarrh. It was not possible to establish a normal standard for acidity, rennet or pepsin in healthy infants, and no facts were brought out by these examinations which could help in making a clinical, or an anatomical diagnosis of gastrointestinal catarrh, or throw any light upon the prognosis and therapy.

The work showed that the examination of the gastric secretion of infants is of no clinical importance, as no greater variations occur under abnormal conditions than can be demonstrated from day to day under unknown nervous influences.

Snow, I. M. : Diphtheria with Persistent Trismus and Opisthotonos. Escherich's Pseudotetanus. (*American Journal of the Medical Sciences.* December, 1902.)

A case is reported of a boy, seven years old, who had a mild diphtheria associated with prolonged contracture of the masseter and dorsal muscles. From the third to the tenth day laryngismus and violent generalized muscular spasms occurred. After the tenth day the disease assumed a tranquil type, with persistent trismus and opisthotonos lasting twenty-one days. Tetanus antitoxin had no effect, but morphine eventually relieved the contractures and the boy recovered.

The long-continued contracture of the jaw and dorsal muscles existing in a condition not dangerous to the patient is most suggestive of Escherich's pseudotetanus.

Monturiol, E : An Atypical Case of Measles. (*Arch. de Ginecop. Obstet. y Pediat.* October 25, 1902.)

The author reports an anomalous case of measles which occurred in a boy five years of age. The prodromal stage and the onset of the disease presented nothing unusual, but on the fifth or sixth day desquamation occurred, accompanied by a rise of temperature to 104° F., and by the formation of vesicles of various sizes filled with bloody serum in some instances, and with pus in others. These vesicles broke easily upon the slightest friction, such as that of the bedclothes, and when they had ruptured they left ulcers the bases of which consisted of superficial fascia, the entire skin having been destroyed.

After these events had taken place the temperature became normal and convalescence rapidly set in, but the ulcers healed very

slowly. Monturiol thinks that his case is unlike those reported by other authors, under the name of pemphigoid measles, etc., inasmuch as in his case the vesication was followed, not by crusting but by ulceration. His case is not analogous to noma on a larger scale, for in noma there is no preparatory vesication but an immediate necrosis.

The cause of this type of measles lies, in the author's opinion, in the increased elimination of toxins by the skin, and in the marked phagocytosis which takes place, causing the death of the cellular elements of the skin. A month and a half after the symptoms described disappeared, the patient had an attack of bronchopneumonia which was followed by the appearance of a new vesicular eruption affecting only the epithelial layers of the skin.

Krautwig, P.: On Sudden Death in Childhood. (*Archiv. f. Kinderhk.* Vol. xxxv., 1902, p. 259.)

Sudden death may be due to syncope (stopping of the heart) or to asphyxia (stopping of the respiration). Heart failure may be due to a severe lesion of the cardiac muscle; to mechanical factors (distended stomach in rachitic infants, fluid in the pericardium or pleura); or to nervous stimuli (poisons produced in the course of infectious diseases, especially diphtheria).

Asphyxia may be due to limited activity of the lung (pneumonia); to blocking of the larynx (inflammation, compression by tumors or possibly by the thymus); to paralysis or irritation of the respiratory muscles, nerves or centres; or to the inhalation of poisonous gases.

The most frequent cause of sudden cutting off of air from the lungs is spasm of the glottis; and, according to modern views, compression by the thymus is also a frequent occurrence. The author is emphatically of the opinion that both glottis spasm and enlargement of the thymus are special features of rachitis, and that a large thymus does not cause spasm of the glottis by compression of the nerves or vessels. Instead of ascribing sudden death in such cases to the status lymphaticus, he would classify them under rachitis in infancy and under status scrofulosus in children over one year old. The important rôle of the thymus in cases of sudden death has been overestimated, and fatal pressure on the trachea, nerves or blood vessels is extremely rare. On the other hand, the thymus is often found enlarged in cases of sudden

death. In children the explanation would seem to be that rachitis causes both the large thymus and the sudden death, in that severe nervous disturbances (especially laryngeal spasm) often appear in its course, due to faulty metabolism.

It is not possible, at autopsy, to ascertain with certainty whether death was caused by heart failure or by respiratory failure.

SURGERY.

Brokaw, A. V. L.: Removal of an Upholsterer's Tack from the Right Bronchus. (*Annals of Surgery*. December, 1902, p. 847.)

A child of eight years inspired an umbrella-headed upholsterer's tack, which she had been playfully carrying in her mouth. Five days later the tack was located in the right bronchus by means of the x-ray, but no attempt was made to remove it. For several weeks the child continued to have morning and evening paroxysms of coughing which greatly exhausted her, her temperature ranged from 100° F. to 103° F., and she lost weight steadily. At the end of a month a low tracheotomy was done and attempts made to withdraw the tack with a pair of flexible laryngeal forceps, but unsuccessfully. Cyanosis stopped these efforts. A week later the child was again anesthetized and after efforts to withdraw the tack by an electro-magnet had failed, it was finally grasped and drawn out with the same forceps as had been tried at the previous operation. The child made a good recovery.

Cautley, E., and Dent, C. T.: Congenital Hypertrophic Stenosis of the Pylorus and Its Treatment by Pyloroplasty. (*Lancet*. December 20, 1902.)

Seven cases are reported. Of these 5 died under the age of four months. Two cases were saved by pyloroplasty. In the diagnosis of the condition persistent vomiting, dilatation of the stomach and visible gastric peristalsis are important. The pyloric tumor, even when large, may not be perceptible. The essential feature of the morbid anatomy is the thickening of the circular muscular fibres of the pylorus.

The writers have found records of nineteen operations for

this condition. Pylorectomy has been done once, with a fatal result, and is regarded as too severe to be considered. The choice lies between pyloroplasty and gastroenterostomy. The writers prefer pyloroplasty for several reasons. (1) It can be done at least as quickly. (2) It is a more definite proceeding and allows more range, as the length of the incision can be graduated according to the condition found. (3) The lumen of the tube can be examined and, if necessary, the longitudinal fold of mucous membrane can be removed. (4) The exact amount of injury to the parts is known.

The main points of the paper are: (1) that congenital hypertrophy of the pylorus is probably a far more frequent affection than is supposed; (2) that the condition is not generally recognized, for the symptoms may be easily misinterpreted or overlooked; (3) that the affection may be successfully treated by pyloroplasty.

Sexton, J. C.: A Case of Bowel Obstruction from Meckel's Diverticulum. (*Indiana Medical Journal*. December, 1902, p. 233.)

According to Kelynaek Meckel's diverticulum was found eighteen times in 1,446 cadavers, and as it was not the cause of death in any of the cases, this pathologist attaches little importance to its presence. In 54 cases of intestinal obstruction, acute and chronic, observed by Fagge, 5 were caused by Meckel's diverticulum.

Sexton reports the case of a boy who, up to his eighth year, had had an umbilical hernia, which was then cured by strapping. In his ninth year an attack of acute intestinal obstruction occurred, and on operation on the eighth day two loops of intestine were found obstructed by a Meckel's diverticulum. The child died twelve hours later.

Rotch, T. M.: Tubercular Peritonitis in Early Life; with Especial Reference to Its Treatment by Laparotomy. (*The Journal of the American Medical Association*. January 10, 1903.)

The writer's views are based upon a study of the cases of tubercular peritonitis in early life, which have occurred at the

Infant's Hospital and at the Children's Hospital, Boston, during eighteen years. The symptoms of tuberculosis of the peritoneum in infancy and early childhood are so varied, unsatisfactory and obscure that it is of great importance first, to determine whether the case is tubercular or not; and next, whether the tuberculosis is of the peritoneum, lung, lymph nodes or any other part of the economy. In cases with marked irregular fever, it is often impossible to determine this question. In cases which are afebrile or in which the temperature is slight and fairly regular, the tuberculin test can be used with advantage. Cultures from the esophagus will, in some cases, show the tubercle bacillus. In others examination of the urine for bacilli will be of value.

Tubercular peritonitis in infants is usually only a part of a generalized tuberculosis and is therefore not amenable to treatment by operation. The favorable cases for laparotomy are those in which there is a localized tubercular process in the peritoneum running a chronic course.

During eighteen years from 1884 to 1902, the total number of cases admitted to the Children's Hospital in which the diagnosis of tubercular peritonitis seemed reasonably certain was 69. Of this number 39 were boys, and 30 were girls. The influence of age on the disease is shown in the following table:—One to 2 years, 11 cases; 2 to 3 years, 17 cases; 3 to 4 years, 14 cases; 4 to 5 years, 9 cases; 5 to 6 years, 4 cases; 6 to 7 years, 3 cases; 7 to 8 years, 1 case; 8 to 9 years, 5 cases; 9 to 10 years, 1 case; 10 to 12 years, 4 cases.

Of the 69 cases 32, or 46.3 per cent. died in the hospital; 20 of them without operation, 12 after operation. Seventeen cases or 24.7 per cent. were discharged without operation and against advice. In 10 of these 17 cases there was evidence of tuberculosis elsewhere; 9 cases in this group were discharged relieved. Only 5 of these 17 cases could be traced, and of these all were alive.

Of the 69 cases 32 were operated upon, and of these 32, 12 or 37.5 per cent. died in the hospital after the operation, 20 or 62.5 per cent. recovered from the operation and were discharged relieved. Of the 20 cases so discharged only 13 have been traced; 11 of the 13 are alive and well, 2 have died.

The writer considers laparotomy indicated in all cases of tubercular peritonitis, provided (1) the general condition of the patient permits it, and (2) that there is an absence of evidence of cerebral, pulmonary, or extensive glandular, or bone, tuberculosis.

Cooke, W. S.: Report of a Case of Tetanus Following Vaccination. (*The New York Medical Journal.* January 10, 1903.)

A girl, four years old, was vaccinated on March 28, 1901. The usual precautions as to cleanliness were observed. The vaccine was of the glycerinated variety on an ivory or celluloid point encased in paraffin. A protective shield was placed over the abrasion. The case ran an ordinary course until April 26th, when the child seemed to be indisposed. The sore was a typical vaccine pustule still discharging. Rigidity of the muscles of the face was noticed on the following day. The rigidity extended and became general. On the 30th, convulsions developed. On May 2d, 800 units of tetanus antitoxin were given. The spasm and convulsions continued until the 9th. After that there were no further convulsions and the spasm gradually remitted.

The explanation of the infection is thought to lie in the fact that, shortly after the vaccination the child was sent to the country and allowed to play out-of-doors. Dust and dirt carrying the germs settled on the legs and perspiration washed them into the sore.

Courtin and Galtier: Osteosarcoma of the Inferior Maxilla. (*Gaz. des Mal. Inf.* December 11, 1902.)

A girl of thirteen years complained of pain in the left parotid region, quickly followed by exophthalmus, dilatation of the left pupil, paralysis of the ocular muscles and swelling of the molar region. The tumor extended into the mouth, and was removed by operation. It proved to be an osteosarcoma of the inferior maxillary bone. The ocular troubles all disappeared after the operation. There had never been any facial paralysis.

Redard: Curvature of the Spine in its Relation to Chronic Obstruction in the Upper Respiratory Passages. (*Gaz. Méd. de Paris.* December 6, 1902, p. 385.)

The author speaks of the great importance of recognizing:—adenoid growths, chronic rhinitis with hypertrophy of the nasal mucous membrane, ozena, congenital malformation of the nasal and nasopharyngeal passages, etc., as causative factors in the production of kyphosis and scoliosis in children and young adults. Rachitis is often coincident. The obstruction to breathing results

in diminution of lung capacity and pulmonary deformities. Kyphosis is dorsal and shows itself in early childhood, while scoliosis is but slightly marked at first, and becomes more pronounced at puberty. The treatment consists in the removal of any obstruction in the upper respiratory passages, which, the author states, is followed by rapid improvement and cure of these deformities. Orthopedic and gymnastic measures are to be used subsequently.

Riddell, R. G. : Three Cases of Intussusception in the Same Family. (*British Medical Journal*. January 10, 1903, p. 72.)

The 3 cases all developed in the children during the first year of life. One was fatal; 2 were relieved by operation. There was a history of digestive disturbance preceding the intussusception in each instance. There was probably some anatomical condition to account for the occurrence of 3 cases in one family, but none such had been observed.

Gulland, G. L. and Wallace, D.: Constriction of the Small Intestine by a Gangrenous Appendix. (*British Medical Journal*. January 10, 1903, p. 66.)

A boy, eleven years old, after an illness of six days with symptoms of intestinal obstruction and general peritonitis was operated upon. The appendix, which was three and one-half inches long, was gangrenous in all but the proximal one-half inch. It was adherent at the tip to the mesentery near its root and through the ring thus formed a loop of intestine, ten and one-half inches in length, had passed. Its base was constricted; it was much distended and congested, with some fibrinous exudation on the surface. The adhesions of the appendix were easily freed and the appendix was removed. The boy died from the peritonitis on the following day.

Eisendrath, D. N.: Traumatic Rupture of the Spleen. (*Annals of Surgery*. December, 1902, p. 921.)

A boy of ten years was struck in the left hypochondriac region by a monkey-wrench, thrown at him in a quarrel. Two hours later he was admitted to the hospital with evidences of hemorrhage into the peritoneal cavity. Laparotomy was at once made and an extensive tear found in the lower border of the spleen. Attempts

to suture failed, as the sutures would not hold, and the spleen was removed. The boy did well for two days but died of septic peritonitis on the third day.

Childress, H. M.: Removal of a Shoe-button from the Nose. (*Journal American Medical Association*. January 10, 1903, p. 101.)

A girl of six years had had a nasal discharge for four years. A slight cold caused the right nasal passage to close up and the right side of the face became swollen and painful. Suppuration in the right ear followed. She had been treated for catarrh for three years. An ordinary shoe-button was removed from the right nasal passage and recovery promptly followed.

HYGIENE AND THERAPEUTICS.

Tunnicliffe, F. W.: The Digestibility of the Albuminous Constituents of Human Milk and That of Various Substitutes for It. (*Journal of Hygiene*. October, 1902, p. 445.)

The experiments forming the basis of this report were undertaken in the Pharmaceutical Laboratory of King's College, London, to ascertain to what extent the chemical difference between human and cow's casein affects their respective digestibilities and also to what extent their differences in this respect can be compensated for by artificial means as adopted in various proprietary foods. Physiologically, the results confirm those of Wroblewsky and Siegfried showing that there is an essential difference between human and cow's casein, and especially that this difference affects the nucleo-proteid moiety of the casein molecule, or that part of it which is digested by the gastric juice. From the point of view of experimental dietetics the results show the importance, in estimating the digestibility of proteid substances in vitro, of submitting the residue of gastric digestion to the artificial pancreatic juice.

It is obvious from the tables that in so far as concerns the simple gastric or simple pancreatic digestion, the digestibility of the proteid constituents of certain milk foods and indeed simple cow's milk itself approximates to or even exceeds that of human casein. When, however, we regard the total digestibility after

peptic and pancreatic digestion we see that the substitutes for human milk fall far short of human milk itself. It is also obvious from the table that certain milk foods do, dietetically, possess a considerable advantage over simple, unmanipulated cow's milk. From the point of view of public health the above results accentuate the nutritive advantage to the infant of the mother's milk as opposed to any substitute for the same, in other words of breast-feeding as opposed to bottle feeding.

Cairns, D. L.: On the Treatment of Diphtheria by the Intravenous Administration of Antidiphtheritic Serum. (*Lancet*. December 20, 1902, p. 1685.)

The paper is the outcome of the writer's experience in the treatment of diphtheria in the City of Glasgow Fever Hospital. Cairns thinks that improvement of the results of treatment in diphtheria must be sought in one of two ways:—(1) by the exhibition of larger doses than those commonly recommended and (2) by the intravenous administration of the antitoxin in certain cases. The general indications for such use of the remedy are, as follows:—(1) malignant forms of the disease; (2) any marked involvement of the lungs; (3) a moribund condition of the patient on admission; (4) profoundly toxemic condition of the patient. In all such cases an initial dose of from 20,000 to 25,000 units of antitoxin is injected into one of the veins, and if improvement does not follow, the dose is repeated at the end of twenty-four hours.

The details of 7 cases are given to show the notable improvement which follows this method of treatment and the statistics of 50 consecutive cases, including 20 in which the antitoxin was injected intravenously, show a mortality of only 6 per cent.

Sill, E. M.: Pasteurized and Sterilized Milk as a Cause of Rickets and Scurvy. (*Medical Record*. Dec. 27, 1902, p. 1016.)

The writer's observations cover 179 consecutive cases of children who had been fed, for periods varying from three to eighteen months, on pasteurized or sterilized milk. For nine months of the year the milk was pasteurized; during the three summer months, it was sterilized. The observations were made in a large dispensary where there is a well-equipped laboratory. The milk was carefully modified to suit

the age and condition of the children and every precaution was taken to make the bottles absolutely clean and sterile before using.

In 97 per cent. of the cases there were unmistakable signs of rickets or scurvy, most of the cases being rickets, or a combination of rickets and scurvy, the one merging into the other. The writer regards the pasteurization or sterilization of the milk as the cause of the conditions found in the children.

Pernet, G. P.: Vaccination Rashes and Complications.
(*Lancet*. January 10, 1903, p. 87.)

An extensive review of the subject is given. As the result of his observations the writer emphasizes the necessity of thorough cleanliness in the operation, the use of a properly prepared calf-lymph, and the protection of the vaccinated areas from later infection by the patient's nails, etc.

Marshall, C. D.: On Certain Diseases of the Cornea Met With in Children. (*The Practitioner*. January, 1903, p. 16.)

The diseases considered by the writer include ophthalmia neonatorum, interstitial keratitis, and phlyctenular ophthalmia. This last affection is essentially not a disease of the cornea, but of the conjunctiva. The cornea only becomes involved, because it happens to underlie the membrane chiefly affected. Pathologically the main feature of the affection is an infiltration of cells beneath the superficial epithelium of the conjunctiva, either scleral or corneal. The infiltrated areas may resolve, more frequently they degenerate, the overlying epithelium is destroyed, and an ulcer is formed. The anterior elastic membrane of the cornea, Bowman's capsule, usually presents a barrier to the deep extension of the lesion. If this membrane is perforated and the infiltrating cells wander into the deeper layers of the cornea, an opacity is bound to be left. It is even possible for the ulceration to go on to the perforation of the cornea.

In the treatment of phlyctenular conjunctivitis the writer deprecates the early use of iron and advises mercury instead.

Atropin instillations or an atropin ointment should be used. The eye should be bathed frequently with a boracic acid lotion. Later on an ointment of two to eight grains of the yellow oxid of mercury to an ounce of vaselin should be employed, but is

harmful in the early acute stages. The use of setons is condemned. If counter-irritation is to be employed, it should be accomplished in some aseptic way. For the fissures of the outer canthus which serve to keep up the photophobia, stretching under anesthesia is advised. When ulceration is present cocain should not be used, as it will destroy the epithelium and favor perforation.

Botifoll, J.: Massage in the Children's Hospital. (*Arch. de Ginecop. Obstet. y Pediat.* November 25, 1902.)

The author reports the results obtained in the Children's Hospital at Barcelona with massage in the treatment of deformities in children. He found that both acute and chronic torticollis of acquired origin yielded to massage with readiness. He also applied this treatment with marked success in Pott's disease, scoliosis, fractures of the clavicle, ankylosis of various joints, and fractures of the radius and of the metacarpal bones. The massage was followed by methodical traction of the extremities. The author emphasizes the importance of employing trained masseurs for the administration of massage in these cases, and thinks that the results in untrained hands cannot be good.

Sweetser, H. B.: Report of a Grave Case of Tetanus Treated with Veratrum Viride; Recovery. (*Northwestern Lancet.* December 1, 1902, p. 427.)

A girl of fourteen years was examined vaginally by a number of physicians for the purpose of determining the nature of an abdominal tumor. Several days later she was operated upon and an ovarian cyst removed. Thirteen days after the operation and nineteen after the vaginal examinations she developed tetanus. The muscular contractures rapidly became general and there were frequent and severe convulsions. The temperature was moderate, but all the other symptoms were severe.

Antitetanic serum was used, but without effect. Chloral and the bromids also failed. Veratrum viride was then tried, at first in doses of 1 minim of the tincture hourly (these were without effect), later in doses of 4 to 8 minims of the tincture combined with 8 minims of the fluid extract of gelsemium, the combination being given by rectum every hour. This had most remarkable effect in controlling the spasms, but did not affect the contractions. The patient recovered.

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CONGENITAL TUMORS OF THE KIDNEY; WITH A REPORT OF TWO CASES.

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The first clear understanding of renal tumors began with the work of Grawitz, who in 1883 recognized the adrenal origin of a certain class of these growths. Birch-Hirschfeld in 1898 studied a second group, which are characterized by their occurrence in the first years of life and by their rapid growth. He showed that what had been previously described as carcinomata, sarcomata, endotheliomata, rhabdomyomata, etc., belonged in reality to one class which he denotes as embryonal adenosarcomata. Of other primary malignant growths Birch-Hirschfeld recognizes carcinomata, although these are extremely rare. Pure primary sarcomata might be expected *a priori*, but the reported cases have been too few to establish this class with certainty.

The most striking thing about malignant tumors of the kidney in general is that although they develop in the kidney substance their structure and elements are totally unlike those of the kidney itself. This applies both to the adrenal growths and to the congenital tumors, which two classes constitute by far the large majority of all renal tumors. This characteristic is simply explained in the case of the adrenal tumor by the fact that it is a cell inclosure which follows the type of its parent tissue, the adrenal gland. In the case of the embryonal adenosarcoma the explanation is even as simple, when it is understood that, as Eberth first pointed out, it takes its origin from remains of the Wolffian body.

As to whether the adenosarcoma actually conforms in structure to the embryonic Wolffian body, no very definite statement appears in the literature. Herzog and Lewis state that there is a striking

similarity between the cells which line the Wolffian ducts in human embryos of 12-14 mm. long and certain cells of the adenosarcoma. It is with the group of embryonal adenosarcomata that this report is concerned, both to consider its origin from the Wolffian body and to bring out certain histologic features. Characteristic of these tumors is their occurrence in the first years of life. Heinicke, who collected 138 cases found that the second and third years were most affected, and that from the sixth to the ninth year only single cases were reported. No accredited case appears later than the ninth year. Sex has no especial influence and the tumors are as likely to occur on one side of the abdomen as the other.

SYMPTOMS.—The existence of the tumor is first made evident by increasing size of the abdomen without renal or other symptoms; the tumor grows very rapidly and produces relatively little cachexia in comparison with its size. The mechanical bulk and weight, by interfering with digestion and nutrition produce marked emaciation; cachexia from toxic absorption appears late. There is but a slight tendency to the formation of metastases. These tumors always develop inside the kidney, the kidney tissue proper, however, does not take part in the process, but becomes compressed and atrophic. The tumor develops from the pelvic region, often splitting the kidney at this point so that what remains of the kidney sits on the tumor like a flat cap.

HISTOLOGIC.—As to the histologic structure Birch-Hirschfeld first showed that the essential feature was a mixture of glandular structures and archiblastic tissue, reminding one of rapidly growing embryonic tissue. Sometimes the glandular elements predominate and again the connective tissue, so that it is not strange that incomplete examination led earlier authors to describe such tumors as carcinomata or sarcomata, according as the sections studied showed one character or the other.

CASE I.—T. B., male, aged four when tumor appeared. Had been healthy and strong until the present trouble.

The mother's attention was first attracted by the fact that the child seemed weak, especially on attempting to go up or downstairs. He began then to lose flesh and seemed to be in pain on stooping. For these symptoms the mother took him to the Boston Dispensary where a tumor in the right lumbar region was discovered and the diagnosis of sarcoma of the kidney was made.

The child was admitted to the Boston City Hospital June 11,

1901, on the service of Dr. Cushing. At this time, which was about six weeks after the first symptom noticed by the mother, the tumor extended from the costal border to considerably below and to the left of the umbilicus. The circumference of the abdomen was twenty-one inches at the umbilicus. There was a moderate polymorphonuclear leukocytosis. Operation June 21st, Dr. Cushing. The tumor including the right kidney was shelled out entire, being apparently completely encapsulated. The left kidney was palpated and nothing abnormal noted in regard to it. No enlarged lymph nodes were felt. The child stood the operation well, and made a good recovery.

On July 12th, a month after admission, and about three weeks after the operation a second tumor was discovered occupying a somewhat similar position on the left side. This rapidly increased in size and the child was discharged July 22d for treatment by Dr. Coley's method at home. The temperature during the stay in the hospital had varied little from normal. The Coley treatment was given for about one month beginning with two minims and increasing to ten, injections being given every other day. At this time the child was running a slightly irregular fever, but there was always a considerable reaction from the injection, the temperature rising to 101.5° F. or over, the highest being 104.6° F.

During this month the circumference of the abdomen did not increase appreciably, being twenty-nine inches at the greatest. The weight increased from twenty-seven to twenty-nine pounds. The emaciation progressed, the appetite failed and it was evident that no headway was being made against the disease, although the tumor may have grown more slowly during this period. On omitting the treatment no change in the rate of growth was noted for two weeks, but after this there was a more rapid emaciation and failure in strength. The temperature was constantly, but irregularly, elevated. The patient died without change in symptoms December 22, 1901.

The urine was frequently examined during the last three months, but no neoplastic cells appeared. Occasionally there was considerable normal blood. General glandular enlargement did not occur. There was no ascites at any time. The tumor apparently caused little pain, but there was considerable discomfort from its size.

Autopsy.—Marked emaciation. Superficial abdominal veins

dilated. No enlargements of lymph nodes. On opening the abdomen the descending colon presented, being forced against the anterior abdominal wall in the median line from xyphoid to pelvis. To the right were the omentum and coils of intestines crowded into the right lumbar region. Three-fourths of the abdominal cavity were filled by an oval, not lobulated, tumor overlaid by peritoneum.

The mesenteric vessels were large and tortuous and distended with venous blood. One dark red lymph node 1 cm. in diameter was found in the mesentery. This was hemorrhagic on section.

The tumor was removed entire by tearing through its peritoneal covering and enucleation. There were no firm attachments except where ureter and renal vessels left the mass. On cutting these, the site of the tumor on the lumbar wall was found to be hemorrhagic and to contain small, new-formed vessels over an area a few centimeters in diameter, but there was no infiltration of the tumor into the abdominal wall.

Weight of tumor, eight pounds. Size, that of man's head. Weight of body after removal of tumor, eighteen pounds. Small amount of bloody fluid in pelvic cavity. On weighing the tumor the hook of the spring scales tore through the capsule, and the tumor fell a distance of a few inches only, into an iron sink. So soft and jellylike was its internal structure that this slight fall sufficed to rupture it into many irregular fragments. The main part was extremely friable, pearly gray, translucent and colloidlike. Large areas appeared necrotic and hemorrhagic. Trabeculae of connective tissue ran irregularly through the mass, but no marked lobulation appeared.

The kidney was located under the capsule of the tumor after some search and incised through its capsule. Capsule of kidney peeled smoothly, was considerably thickened in region of pelvis.

As the pelvis of the kidney was approached the kidney substance thinned out over the tumor as though the tumor had partially split the kidney at the pelvis. The separation of the capsule from the kidney became more and more difficult as the hilum was approached, the capsule grew thicker and it was apparent that it was common to both kidney and tumor or represented a fusion of two layers. There was no infiltration of the tumor substance into the kidney substance. The origin of the tumor therefore was apparently the connective tissue around the pelvis of the kidney.

Under the capsule of the kidney at the cortex was a sharply defined, circular tumor of 1 cm. in diameter, similar in texture to the kidney substance, but paler, with edges uplifted from the kidney. On section this small tumor was everywhere sharply defined and noninfiltrating. Ureter normal, underlying peritoneal capsule of tumor. Site of right kidney occupied by firm adhesions.

In the liver were one large and numerous small, sharply circumscribed, colloidlike metastases, not necrotic. The largest was 2 cm. in diameter. Bronchial lymph nodes were not enlarged. Retroperitoneal lymph nodes were not enlarged. Other organs normal.

The tumor removed at operation weighed 1180 grams; it was the size of a child's head, and, like the one already described, sprang from the pelvic region of the kidney, having partially split the kidney. Macroscopic appearance of cut surface resembled the first tumor.

Sections taken through the grayish, colloidlike portions of the tumor removed at autopsy gave upon microscopic examination the best pictures of the tumor as a whole. Other areas which were described as being yellowish or reddish or thick and fibrous were found to be either necrotic or hemorrhagic or else connective tissue trabeculae. The typical areas appeared, under the microscope to be composed of two distinct elements, glandlike structures and an imbedding stroma. The proportion of one to the other was variable; in some places the stroma was much more prominent and the glandular structures became very few, but nowhere did the glandular elements obscure the stroma.

The glandular structures consisted of tubules and of masses of epithelioid cells. The tubules were very irregular in their course, and assumed remarkable convolutions. Their course was at times quite long, running half across a low power field.

The tubules were lined by cylindrical epithelial cells, with oval, vesicular nuclei containing fine and coarse chromatin granules. There was one or several rows of cells in a tubule. The nucleus was placed at the outer end of the cell, while next to the lumen was a cytoplasmic layer often showing a distinct cell membrane. No cilia were to be made out. The masses or nests of epithelioid cells which constituted the second type of glandular elements occurred in thick rings around the tubules or in discrete masses often with a concentric arrangement suggesting a beginning tubule.

Mitoses occurred among these cells, but not abundantly; the nuclei were similar to those of the cells lining the tubules. There were numerous shrunken, intensely staining nuclei among these cells, evidently lymphocytes.

The stroma of the tumor likewise consisted of two elements, or a differentiation of the same element into two distinct forms, namely, spindle-celled fibromatous tissue and a very delicate meshwork of fibrillæ. The latter were in the nature of protoplasmic processes from stellate cells lying in the meshwork, and these fibrillar processes could be traced until they anastomosed with those from other cells. The spindle-shaped cells lay in bundles running irregularly throughout the sections and surrounding the glandular elements separating the latter into more or less definite masses.

Serial sections demonstrated that these tubules and masses of cells were everywhere continuous throughout the tumor. In no instance did the tubules end blindly in both directions, but they could be followed through a series of twenty-five or more sections and were found to ultimately connect with other tubules. Thus the tumor was composed of a system of tubules, not of separate tubules, showing that the original structure was a tubule which had branched and convoluted irregularly.

The blood vessels of the tumor consisted of a network of fine capillaries with distinct endothelial walls, and of large, irregular sinuses with connective tissue walls of some thickness. No muscle fibre occurred in the walls of the vessels.

As the necrotic areas were approached diffuse hemorrhages occurred, the tubular structures and epithelioid cells disappeared, leaving the stroma engorged with blood. Soon the stroma itself became necrotic and was replaced by fat granule cells, leukocytes and granular detritus.

Sections taken from the region of the hilum where the tumor apparently had its origin, showed that there was no true infiltration of the kidney by the tumor. Everywhere a thick band of connective tissue separated the two structures; this was formed partly by compression and atrophy of the kidney substance, as shown by the presence of one or two atrophic glomeruli and remnants of tubules, and, for the rest, of new formed connective tissue.

There was one small area where the tumor had broken through this connective tissue band and had invaded the kidney directly. This however did not give evidence of being the point of origin of

the tumor, but was rather a late extension. This was shown both by traces of the preexisting connective tissue band and by the sharp limitation of the neoplasm from the kidney.

This portion of the tumor in the neighborhood of the hilum must be regarded as the oldest part. It was partly necrotic and had large blood sinuses and areas of hemorrhage. Most conspicuous were enormous epithelial walled ducts, plainly visible to the naked eye, representing the glandular part of the tumor. The nests of epithelioid cells had been replaced by blood and leukocytes so thickly packed as to obscure the stroma. The tumor had not the characteristics of the common fibroma of the pelvis, nor had it here the myxomalike embryonic character seen elsewhere. As the distance from the kidney increased the ducts became smaller and the typical, irregularly winding tubular structures appeared.

At the hilum were found three masses of cartilage of embryonic type lying in the partly necrotic tissue, without any definite connective tissue surrounding them. Spindle and stellate cells were conspicuously absent from this portion of the tumor. No sections in any portion of the tumor examined showed the presence of muscle fibre.

In the original tumor the differentiation between the glandular and stromal elements was most complete, the cells being always characteristic and distinguishable. Here the tubule formation was most developed, but the origin of the masses of cells from the tubules, though inferable, was not demonstrable.

The metastasis at the cortex of the kidney was sharply circumscribed and not infiltrating. It was at a distance from the main tumor and moreover lay underneath the kidney capsule, while the main tumor lay outside the kidney capsule, proving this to be a metastasis and not an extension of the tumor. There was a broad band of connective tissue between this metastasis and the kidney representing the compression and atrophy of the renal tubules and their replacement by connective tissue. There were a few atrophied glomeruli in this false capsule.

The stroma of this tumor was limited to thick trabeculae of connective tissue surrounding irregular spaces. Within these trabeculae were numerous definitely walled ducts with large lumina similar to those found at the hilum in the main tumor. That these ducts were a continued development of the characteristic tubules was seen in places where the ducts escaped from the trabeculae

and entered the irregular spaces where lay the tubules and nests of cells. The growth here had been more rapid than in the main tumor and the absence of the embryonic stroma had allowed the epithelial elements free opportunity to develop characteristically, and the transition from large ducts in the trabeculæ to small tubules with basal membrane, thence into rings and solid columns of cells which finally broke up into irregular cell masses, was easily made out.

Imbedded in the connective tissue trabeculæ were several masses of cartilage, embryonic in type. This metastasis closely resembled the portion of the main tumor located at the hilum, in that it was mainly epithelioid and that both contained large ducts and masses of cartilage.

The metastasis in the liver was sharply circumscribed, its growth was by extension and not by infiltration. It was the youngest, its growth had been most rapid and embryonic conditions mostly obtained. Here difficulty arose in distinguishing the varieties of the elements. At the periphery there was a fairly distinct connective tissue meshwork, and the intercellular substance took the characteristic connective tissue stain, but elsewhere the growth had evidently been too rapid to allow of laying down of connective tissue fibrils, and so the cells were of the simple embryonic type either round or stellate. These connective tissue cells were indistinguishable from the epithelial cells derived from the tubules which cells were also often stellate. The tubules could be distinctly seen to end in masses of large oval or stellate cells with vesicular nuclei, but it was impossible to say which were epithelial and which connective tissue cells.

In the simplest embryonic form all cells are alike. We cannot doubt their separate origin from mesenchyme and mesothelium, but in this regressive metaplasia morphologically they are indistinguishable.

We must assume that a metastasis from such a tumor as this begins with more than one cell, since the developed metastasis has both mesothelial and mesenchymal elements. We cannot imagine that the stroma develops from the connective tissue of the organ which is invaded, because it retains the embryonic characteristics of the original growth.

The formation of the masses of cells from the tubules could be readily followed in serial sections. A tubule with a definite basement membrane in succeeding sections became a ring of

cells around a lumen which later disappeared, leaving a solid circular mass of cells which again was succeeded by an indefinitely arranged cell mass.

Changes in the tubules were very rapid, with convolutions and variations in size. The tubules in this liver metastasis were long and irregularly branching with lumina varying greatly in diameter, now widening into a large duct and again narrowing so that the walls were in contact. The branches were just as variable as the parent tubule, and there was no tendency to decrease in size as the branches multiplied, nor was the parent tubule larger than its ultimate division.

The metastatic nodule was perfectly spherical and there was a tendency to restriction of its tubules to the periphery, the parent tubules converging toward the centre like spokes in a wheel and branching as the periphery was approached. This gave a suggestion of lobulation to the nodule. The liver cells around the metastasis were compressed, atrophied, and ran in long rows like atrophic cirrhosis. There was an indefinite compression capsule of connective tissue around the metastasis.

The enlarged mesenteric lymph node was infiltrated with the glandular neoplastic elements so that every trace of lymphatic structure had disappeared. The larger part of the node was fibrous connective tissue, but there was none of the characteristic myxomalike stroma.

The main tumor had two sets of characteristics, those of the pelvic region which we found repeated in the metastasis on the kidney, and those of its larger mass which were repeated in the metastases in the liver and lymph node.

One structure found in the main tumor was worthy of special notice in that it closely simulated the formation of glomeruli.

Solid masses of cells were found surrounded by epithelial rings, either connected with the central mass at one point or entirely separate. The similarity was further heightened by an apparent differentiation of the cells into squamous cells in the capsule and spherical cells in the central mass. Another common appearance was a crescentic infolding of a tubule with a mass of cells filling up the depression exactly like the first step in glomerulus formation in a fetal kidney. All these appearances were explained by serial sections, which showed the central solid mass of cells to have a lumen above or below, and to be an invaginated tubule.

Although this demonstrated that these structures were merely peculiar convolutions of the tubules they may have had an important bearing on the origin of the tumor from the Wolffian body, for exactly such convolutions appeared in this embryonic organ.

MacCallum, in a recent article in the *American Journal of Anatomy*, says that the Wolffian body consists of a tubular and a glomerular part. The tubules are S shaped with dilatations at the end similar to Bowman's capsule of the permanent kidney. In general the tubules are of two parts, a secreting and a collecting, with columnar epithelium in the secreting and low epithelium in the collecting portion. There occurs a crescent-shaped bending of the end of the tubule with the concave side thickened and the opposite side thinned out to a layer of flat cells. A small mass of capillaries is pushed into the concave side of this end structure, derived from the aorta.

No tufts of vessels were found in the tumor, but the infoldings are the same. As for a differentiation in the cells of the tumor tubules into columnar and squamous, this could be readily imagined, but as readily explained by the supposition that some were looked at in profile and others directly, as that they were actually differentiated. The convolutions of the tubules constituted the strongest likeness between the Wolffian body and the tumor tubules. No similarity could be looked for between the stroma of the tumor and the connective tissue of the Wolffian body, except that both being embryonic consist largely in stellate cells.

The tumor removed at operation showed the same glandular structures and myxomalike stroma, but in addition to the stellate and spindle-celled elements, occurred numerous unstriped muscle fibres and a few striped muscle fibres of the embryonic type with large, distinct nuclei, occupying the whole diameter of the fibre. There were a few small islands of cartilage. There was a thick band of connective tissue between the kidney and the tumor.

The presence of cartilage in the pelvic region and in the kidney metastasis, and of muscle fibre in the tumor removed at operation may be simply explained by the supposition that there were enclosures of the myosome and chondrosome with the other mesenchymal elements.

CASE II.—Italian, male, aged three. No operation. Autopsy. Weight of tumor with kidney 1650 grm. Length 23 cm.

The tumor was a soft ovoid mass, semitranslucent and grayish white: somewhat nodulated. At one end appeared the remains

of the kidney as a thin, outspread shell, overlying the tumor. On section the kidney was from two to eight millimeters in thickness. What little renal tissue remained was normal in consistency and markings. The portion of the tumor contiguous to the kidney was covered with a fibrous capsule; elsewhere the tumor had apparently broken through its capsule. On section the surface was marked by opaque bands of connective tissue dividing the substance into irregular masses. Areas of hemorrhage and necrosis appeared. Pelvis of kidney was normal.

Microscopic examination showed the tumor to consist of glandular and connective tissue elements. The epithelioid elements were by far the most abundant, and were arranged either in large, closely packed masses of circular outline or in smaller masses assuming more or less closely the form of tubules; a few having a definite central lumen. The cells forming the tubules were columnar, with oval nuclei similar to those of the nests of cells, which were large, oval or round, vesicular, and having coarse and fine chromatin granules.

The most highly developed tubules here were simple in character, compared to the tubules of the first case. Mitotic figures were abundant.

The stroma was composed of spindle-shaped cells arranged in bundles, and forming trabeculae around the cell masses. Among these spindle cells were a few nonstriated muscle fibres.

In addition to these elements of the stroma there was a very fine meshwork of fibrils extending out from the trabeculae and penetrating everywhere between the epithelioid cells. For the most part the latter were so thickly packed that this meshwork was barely visible, but, where the cells were absent, the fibrils were seen to arise from stellate cells and to be protoplasmic processes from them. A section taken to include part of the kidney showed it to be diffusely necrotic. The tubules were dilated and filled with granular detritus; the glomeruli were few and atrophic.

Another section showed a mass of epithelioid cells in the midst of the kidney substance. This was sharply circumscribed and appeared among necrotic tubules.

Other sections embracing both kidney and tumor showed a well-marked connective tissue band between the two and no invasion of the kidney by the tumor.

COMPARISON OF THE TWO CASES.—The same primary structures appeared in this second case as in the first. There was a

fibrous and myxomatous stroma in each, enclosing epithelioid structures of similar types.

The differences, although well marked were of a secondary nature. In the first case the highly complex glands were characteristic, in the second the masses of gland cells with but a tendency to tubule formation. The adenomatous structure was marked in the first; the second had more the appearance of carcinoma. The stromata were also perfectly analogous, although in the first case it was abundant and myxomatous, while in the second it was scanty and fibromatous.

The points of origin were the same, and there was no true infiltration in either.

The two main tumors of the first case are to be regarded as separately developed tumors of the same kind rather than that the left tumor was a metastasis from the right.

The seat and origin of the two was alike paranephric, from the Wolffian body and not invading the kidney substance. It is possible that a neoplastic thrombus might have invaded the right renal vein and grown over to the left side, for such thrombi are not uncommon in these tumors, but in that case the metastasis formed in the left kidney would have been inside the pelvis and not separated from the kidney by the kidney capsule as actually occurred.

No such renal thrombus was found, however. When metastases arise from these tumors, which is a late and rather uncommon occurrence, they appear first in the liver or lungs, having been transmitted by the portal vein or inferior vena cava.

Possibly the increase of work thrown upon the left kidney after the extirpation of the right, producing an increased flow of blood to that region, had a stimulating effect upon the latent embryonic tissue in the region of the old Wolffian body and thus started the growth of the neoplasm. Five bilateral tumors of the kidney have been reported (by Eberth, Eve, Cohnheim, Landsberger and Merkel) this case making the sixth. Of these only two have shown striped muscle fibres on both sides.

Such slight differences in structure, however, have no bearing on the question of metastasis or separate growth. Indeed, the structural characteristics in general have little weight on that question as different portions of the same tumor vary so much. The metastasis occurring in the mesenteric lymph node was remarkable, because the lymph stream is not commonly invaded.

The metastasis on the cortex of the left kidney is interesting, for it could not have arisen directly from the main tumor from which it was separated by the capsule of the kidney, being cortical while the tumor was near the pelvis. It is hard to imagine that it came through the arterial blood stream, having passed the pulmonary capillaries, especially since the presence of cartilage leads to the inference that the original embolus was composed of several cells, both mesenchymal and mesothelial, but no venous or lymphatic current could lodge it at the cortex of the kidney.

Herzog gives an interesting description of the relation of these tumors to the Wolffian body and of the embryology of that body.

Birch-Hirschfeld's view of the primary origin of the tubules and the secondary development of the cell masses is opposed by Wilms on the ground that the most complete epithelial structure is found in the oldest parts of the tumor. This is undoubtedly true as is well shown by the presence of macroscopic ducts in the pelvic region of case one, but this speaks against Wilms' view, for the metaplasia of all tumors increases as the distance from the starting point increases. This is beautifully illustrated by the small metastasis in the liver in case one. Spherical in form, the tubules radiate from the centre where the first tubule must have been; nearing the periphery the tubules branch and throw off nests and loose masses of cells. These show a marked tendency to revert to the simple embryonic type.

The metastasis on the kidney in case one affords a direct proof of the derivation of the cells from the tubules, for here, for some obscure reason, the growth of the tubules and connective tissue stroma continued for some time before any cell masses were given off, so that large ducts were found enclosed in thick connective tissue trabeculae, and cartilage was laid down, before the ducts escaped from the trabeculae and broke up into less developed tubules, then columns of cells and finally loose cell masses.

Herzog found in his case neither an intimate blending nor a chaotic mixture of the two different types of tissue. There were no metastases, so that metaplasia had not advanced to the degree present in my first case, in the metastasis of which blending was intimate.

In the classification of these tumors their embryonic origin is the fundamental consideration. They are both mesenchymal and mesothelial, the former appearing in the glandular and the latter in the stromatous structures. Apparently both elements

are primary, and the essential elements, while the cartilage, striped and unstriped muscle are accidental enclosures of the chondrosome and myosome.

The mesothelial part of the tumor, the epithelial elements, have a marked adenomatous structure. The mesenchymal part, the stroma, is sarcomatous, while the enclosure of myosome and chondrosome give additional characteristics of rhabdomyoma (mesothelial) and chondroma (mesenchymal).

The term carcinoma cannot be applied, as the adenomatous type is evident and as the epithelial elements do not take origin from developed glands of the kidney.

CONCLUSIONS.

(1) Histological comparison shows that these tumors resemble the embryonic Wolffian body.

(2) There is a continuous system of tubules and their derivative cell masses throughout the tumor.

(3) The tubules are the primary mesothelial elements and the cell masses are derived from them by retrograde metamorphosis.

(4) The histological characteristics vary with the age of the part; the pelvic region is oldest and shows complete differentiation of mesenchyme and mesothelium, the metastases are youngest and show, not transitions between mesothelium and mesenchyme, but an embryonic condition where all cells are alike.

(5) Bilateral tumors are coincident and not metastatic.

(6) Metastases may occur through the lymph stream as well as through the blood stream.

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THE OCCURRENCE AND MORTALITY OF TYPHOID FEVER IN INFANTS AND CHILDREN.*

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It is interesting to note the erroneous ideas prevalent as to the occurrence, frequency and severity of course of so common a disease as typhoid fever in the infant and child. The physician who has passed through several epidemics of typhoid fever cannot reconcile his own observations with those usually accepted on this subject.

It is now generally acknowledged that typhoid fever can be conveyed from the mother to the fetus. The infection in a majority of cases occurs by way of the placenta and in a large percentage of cases causes the death and premature expulsion of the fetus. If, however, the fetus is carried to term it is born infected with the disease and dies soon after birth with symptoms closely resembling a sepsis of the newly born. Gerhardt, Jacobi, and Blumer have published such cases and the literature on this subject has since been enriched by the observations of Morse, Blackader, and Crozer Griffith.

The disease in the newly born runs an atypical course, the infection partaking of the nature of a hematogenous one. The classical symptoms of typhoid fever are absent in these very young patients. The mortality is very high.

Typhoid fever occurs later in early infancy, that is, up to the age of two years, beyond the question of a doubt. Here also we must separate the cases of infantile typhoid before the age of twelve months from those occurring up to the age of two years. Cases belonging to both periods are fast accumulating in the literature since attention has been called to this important subject by the writings and discussions of Northrup, Griffith, Wilson and others. If some doubt must be thrown on the older literature of typhoid fever in infants and young children up to the end of the second year of life, we must in all fairness admit that an observer such as Henschel was not far wide of the mark when he published 9 cases of typhoid fever in infants and children below the age

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of two years in a series of 381 cases. Some of the cases in the older literature cannot be unreservedly accepted as those of typhoid fever, inasmuch as at that time laboratory methods, especially the serum diagnosis and the examination of the feces for typhoid bacilli, were not in vogue. Today with the aid of more exact methods of diagnosis we have been able to establish the truth of the contention of early writers that typhoid fever certainly does occur in children below the age of two years, though not with as great a frequency as at a later period of childhood. The causes of this infrequency can readily be explained on external grounds. During the first year and most of the second year of life the infant and young child is fed with food which has been subjected to heat to a greater or lesser extent. Such children, it must be assumed become infected either through food or by coming in contact in some uncleanly way with the infectious material.

It has been shown by me how in a family of children convalescents from typhoid with ambulatory and apparently mild types of typhoid fever may infect others. Thus there is nothing to prevent the younger children of a family from being infected. I must conclude also from my own observations that these younger children have a marked susceptibility to infection. I have noted elsewhere the infection of a child in my own ward with typhoid fever. This patient had been in my ward under observation suffering from another affection. In this case I am still at a loss to know how, in a hospital with all the precautions exercised in a children's ward against the occurrence of infection, it could have taken place. The infectious material must have been infinitesimal. This only illustrates that infants and children have a great susceptibility to the disease and will contract it if occasion presents. We cannot as yet state in figures the frequency of typhoid fever in infants and children below the age of two years as compared to that of older children and adults, until a sufficient number of cases have been observed and diagnosed with modern methods.

In a very recent publication Koch shows that in a certain locality of Germany the children were the chief sources of infection in the dissemination of typhoid fever and also that the average physician failed to diagnose typhoid fever in the children of the village. Koch asked for the school lists and on investigating the absent children he found 72 cases of typhoid fever among the

absentees. Of these 72 cases only 8 had been diagnosed and reported as typhoid fever; whereas, the remaining cases on being examined as to the presence of typhoid bacilli in the feces and by the Widal reaction were found to have typhoid fever though clinically they were treated for other maladies.

The mortality among infants and children below the age of two years cannot as yet be stated with accuracy. It is, however, I think, larger than is generally appreciated, if a series of cases in epidemics of varying severity are taken into consideration. Griffith has collected a number of cases below the age of one year; and though we must look with doubt on many of these cases drawn from the early literature, still he has shown that the mortality is fully 50 per cent.

As we pass the second year of life the mortality will diminish, for, according to the statistics of Curschman, for children between the age of two and five years this is only 4 per cent. We will refer to these statistics later. I have reason to believe that this favorable figure can only be true of mild epidemics, for Marfan in the epidemics observed by him in early childhood has encountered a mortality of 50 per cent.

If mortality in adults is studied from the age of adolescence, the fifteenth year to that of forty, we see that, according to Curschman the average mortality varies from 8.7 per cent. to 14.9 per cent. in epidemics of ordinary severity. In severe epidemics such as those recorded by Liebermeister and others the mortality has, at times, risen as high as 20 to 40 per cent. We cannot speak understandingly of the mortality of typhoid fever in adults without taking into account the periodic appearance of a series of severe cases as well as the general run of a moderately severe type. The age of the patient must also be taken into account, for the older the patient, apparently the greater the mortality in the adult. Osler, in a series of 829 adult cases, gives a mortality of 7.5 per cent. without stating the various ages and their respective mortality. If we consider the mortality in children from the ages of two to ten years, we at once see that various authors differ in their mortality rates according to the method by which these figures were collated. Thus Stowell in a series of 61 cases, 4 of which were under two years of age, did not lose a case. Forchheimer, of Cincinnati, in a series of 80 cases did not lose one. Baginsky in an epidemic of 50 cases did not lose one. Thus here is a series of 190 cases and no mortality. On the

other hand Henoch in a series of 381 consecutive cases had a mortality of 13 per cent. This author, however, emphasizes the fact that in some years he did not lose a single case. At other times the severity of the epidemic caused the death of a large number of children. From this standpoint, therefore, Henoch is inclined to look with doubt on the statement of some that typhoid fever in children is always a mild disease. For completeness sake it is well to note that Ashby and Wright in a series of 592 cases had a mortality of 8 per cent. and Comby in 250 cases a mortality of 7 per cent. Curschman, giving the statistics of a large number of cases occurring in Hamburg, shows that in the year of 1886 the mortality was 7.3 per cent. in the children as compared to 11.5 per cent. in the adult. In 1887 6.8 per cent. in children as compared to 8.8 per cent. in the adult. Of 152 cases of typhoid fever in the adult treated in the Mount Sinai Hospital in the years 1898-1900 there was a mortality of 9.2 per cent. as compared to a mortality during the same years in the children's service of 6.6 per cent. Thus in cases drawn from the same epidemic there was only a difference of 2.2 per cent. in the mortality rate. In this same series of cases the mortality in 1898-99, in 29 cases was 10 per cent., and in 1899-1900 in 31 cases it was only 3 per cent. with practically the same treatment.

Of the American authors both Holt and Griffith make the mortality low. Holt took 2,603 cases of twelve different observers and found a mortality of 5.4 per cent. This method of collating the cases of various observers necessarily includes cases both mild and severe, and does not give an idea of the varying mortality. My own experience does not support the view that typhoid fever is always a mild disease in children from the age of two to ten years. Of 100 cases I have had series, for example 1900 and 1902, in which I have had a mortality of 3 per cent.; whereas, in former years, the mortality mounted as high as 10 per cent. in the same service. This year in a series of apparently mild cases we had the most severe complications, namely, two of perforation. In children there is little reaction due to toxemia and a severe intoxication runs to outward appearances a mild course. The children are, however, severely ill, the emaciation is rapid and sometimes extreme. If we study the cases we will see that in these so-called mild cases the most severe complications may ensue. It is deceptive to say, therefore, that typhoid fever is mild in any particular case because the child does not seem very ill. Certain it

is that, if we study the statistics of the general run of cases of Henoch, Baginsky, Curschman and those I have noted from my service, the mortality varies from 6.6 per cent. to 13 per cent from the age of two to ten years. Whereas, in the adult as seen in the statistics of Osler and Curschman the mortality is not much higher. Children in severe epidemics are subject to a mortality of 30-40 per cent. if the toxemia is great.

The causes of the mortality in children are much the same as in the adult. The greatest number die of toxemia, the next greatest number die of hemorrhages, pneumonia, and perforation. That perforation is not uncommon in children is distinctly shown by Mery who states that in the last six years a dozen cases of perforation have been observed in children in the hospitals of Paris. These perforations occurred for the most part in the beginning of the third week of the disease, and were preceded in most cases by hemorrhage. The mortality in perforation was shown by Mangin to be 67 per cent. Of the series of 829 adult cases of Osler there was perforation in 23 cases, a percentage of 2.7 per cent.

Curschman in a very large series of cases met with perforation in from 1.6 per cent. to 2.2 per cent. This writer quotes, however, some very unfavorable statistics, including those of Murchison, giving 21.2 per cent. of perforations; of Hesch, who in 1,271 autopsies found 4.06 per cent. of perforations, and of Bouardel and Thoriot, who in 1,721 autopsies found 11.3 per cent. of perforations. These large figures are probably only true of certain severe sets of cases.

In my own experience I have met 2 cases of undoubted perforation, one of which was operated upon, in a series of 100 cases. On the other hand Filatow has never seen a case. Henoch's series of 381 cases includes only one of perforation. The heart, of all the organs, though undoubtedly affected in most cases by the toxemia and fever, does not present the severer forms of myocarditis or endocarditis. I must conclude from my own observations that these complications are rarer than in the adult.

Typhoid fever in the fetus and newly born, as far as the reported cases show, is a very severe, and in most cases, a fatal infection. In infants and children below the age of two years, the real mortality is still a matter of speculation on account of the lack of reliable statistics. From the age of two to ten years the mortality varies according to the severity of the epidemic. In some

years the mortality is very low (Stowell, Forchheimer, Baginsky). At other times the mortality will mount as high as 6 to 13 per cent., varying with the age and severity of the infection. In some epidemics of a particularly virulent type the mortality has risen to 20 to 40 per cent. (Marfan, Baginsky). It is thus for practical purposes not well to mass cases inasmuch as the mortality in a severe epidemic is cut down by the favorable results in a moderately severe type of the disease.

A Case of Congenital Lateral Ventral Hernia—Steinhardt (*Jahrb. für Kinderheilk.*, Vol. LVI., 1902, p. 220) reports the case of a child three weeks old, which since its birth presented on the right side of the abdomen a soft mass the size of its fist; it presented all the characteristics of a hernia. At autopsy two weeks later this diagnosis was confirmed. The hernia was produced through the deficiency of all the muscles in this region, the external and internal oblique, as well as the transversalis abdominis, being absent at this point. The abdominal wall at this point consisted of only the skin, subcutaneous tissue and peritoneum. No other malformation existed.—*American Medicine*.

Microscopic Examination in a Case of Atelectasis of the Lungs in a Newly-Born Child.—Professor Salvatore Ottolengui (*Gazetta degli ospedali e delle cliniche*, September 14, 1902) describes the results of the examination of the lungs of a new-born child. Although there was no doubt in this case that the child had been born alive, and had died half an hour after birth, the lungs presented the fetal characters, and even the smallest pieces sank immediately in water. On microscopical examination it was found that the alveoli of the lung presented the collapsed condition of the fetal organ, and that they had never been distended. This lung, therefore, had either never breathed, or had just begun to breathe. The lungs of this child were, moreover, in a state of fetal development in which they could under no conditions have expanded, for there was not enough elastic tissue developed for this expansion. Although the child was heard to cry and seen to move, yet its attempts at respiration had been unsuccessful, and perhaps only the margins of the lungs were slightly expanded. This case is important from a medicolegal viewpoint, inasmuch as it is well to know that a child may have had atelectasis though it had cried and seemed to breathe. As regards the possibility of having fetal lungs and showing fetal alveoli on microscopical examination after the latter had actually expanded nothing definite can be said as yet.—*New York Medical Journal*.

THE ETIOLOGY OF ENDOCARDITIS IN CHILDHOOD.*

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OCCURRENCE.—Endocarditis may occur in fetal life and may then be a cause of cardiac malformation. In fetal endocarditis usually the right side of the heart is affected, from which circumstance it follows that in infancy the presence of right sided cardiac disease is not uncommon. The pathological changes in these cases include thickening, shortening, and agglutination of the valves. Thus, two of the semilunar valves may be adherent or a set of valves may be firmly fused, leaving only an aperture in the centre.

CONGENITAL ENDOCARDITIS.—While fetal endocarditis may be a primary cause of congenital defects these, once established, are certainly a condition predisposing to attacks of endocarditis in childhood. (Endocarditis recurrens.) Acute endocarditis may originate in early infancy, but this is rare. Holt¹ says that in the autopsies of over one thousand infants less than three years of age not a single case of acute endocarditis was found. Likewise Northrup and O'Dwyer discovered in 2,000 autopsies at the New York Foundling Asylum only 1 case which presented acute inflammatory lesions.

ACQUIRED ENDOCARDITIS.—After the fifth year of age endocarditis is not uncommon, and in later childhood it is of frequent occurrence.

Rheumatism is, as in adults, the disease associated with the greatest number of cases, but in childhood endocarditis is present in a far greater proportion of rheumatic cases than in adults. This is due, most probably, to the more delicate organization of the endocardium at this tender age, with a corresponding diminished power of resistance. The severity of the general rheumatic manifestations does not afford an index to the liability of cardiac implication. In fact trivial articular disturbances are often attended by decided pathological changes in the endocardium. It is not necessary that the articular symptoms should pre-

*Read before San Francisco County Medical Society.

cede the endocarditis. Endocarditis may be the first, and possibly the only, manifestation of the disease. Rheumatism furnishes more cases of endocarditis than all other conditions combined; and the proneness of acute articular rheumatism to make its appearance in late childhood explains the comparative frequency of endocarditis at that time of life. Endocarditis is not to be regarded as a result, but as a manifestation of rheumatism; and is probably caused in these cases by a micro-organism—as yet unidentified—which, having a predilection for serous surfaces, attacks the endocardium just as it does the synovial membranes of the joints.

Chorea, which is closely related to rheumatism, if not indeed the same disease, is, especially in children, a not infrequent concomitant of endocarditis. Here again the process may be rather a manifestation than a result of the disease. Nor should the occurrence of endocarditis with tonsillitis be left unnoted in this connection.

Scarlet fever, measles, diphtheria—all of the acute infectious diseases—may be starting points for endocarditis. In these instances, however, as in pneumonia and similar diseases, the process is radically different from that existing in rheumatism and chorea. Here two factors operate; first, the disease by its increased demands upon the heart as well as by the vitiating action of the fever and the presence in the circulation of noxious substances impairs the resistant powers of the heart; and secondly, the weakened endocardium may then be successfully attacked by the specific bacilli of the special disease or by other agencies opportunely chancing to be present.

Malignant endocarditis is exceptional in infancy. Harris' case in a child four years old was long the youngest case recorded. Malignant endocarditis may, however, occur in early infancy, as, for example, in my case of pyocyaneus endocarditis, where the patient was but two and a half months of age. In this case² the pyocyaneus bacillus, a germ ordinarily nonpathogenic or at most mildly virulent to the human species, not only invaded the circulation, causing a septicemia, but the circumstances being favorable, even succeeded in securing a foothold in the endocardium and in causing a malignant endocarditis. The favorable circumstances referred to were to be found in the debilitated condition of the infant (which was afflicted with hereditary syphilis). Two days before death, the heart sounds until that time having been normal,

a loud, rough systolic murmur became audible. The temperature assumed an intermittent character; diarrhea ensued; and hemorrhagic bullæ suddenly appeared on the toes. In blood taken antemortem rod-shaped bacilli, which subsequently proved to be pyocyanous bacilli, were discernible. From blood obtained from the heart one and one-half hours after death pure cultures of pyocyanous bacilli were propagated. With the bacilli thus obtained a pyocyanous endocarditis in a rabbit was caused experimentally (in the usual manner; viz., by first puncturing the aortic valves with a probe introduced through the carotid and, subsequently, injecting the bacilli into the circulation). In the pinhead sized verrucosities found on the infant's mitral valve I demonstrated colonies of pyocyanous bacilli.

At this point it may not be out of place to touch upon the relation existing between the several pathological and clinical varieties of endocarditis. The lesions described as verrucosities, ulcerations, perforation, thickening, contraction and so on are not separate and distinct pathological processes but different stages or terminations of the same process.

Weigert,³ Fleischhauer,⁴ Eberth⁵ and others have proven that the primary effect of bacterial activity is a necrobiosis. This, then, in the endocardium may result in ulcerative endocarditis; but if the reparative forces are given opportunity to act in these cases, cell proliferation follows with a resulting cicatrix and shortening or thickening and the formation of verrucosities. Again verrucosities may be the primary pathological alteration and by degeneration they may give place to ulceration. Or, if the ulceration continues to extend, perforation may result. The proliferative process may begin within a few hours and usually does begin within twenty-four hours.

Malignant endocarditis differs from the great majority of cases of simple endocarditis only in the gravity of the constitutional symptoms. Thus rheumatism and chorea may be etiological factors in the causation of both varieties; while viewed from the pathological standpoint a severe verrucose endocarditis due, for example, to the pneumococcus may be just as malignant as is ulcerative endocarditis. It may in fact be a stage precedent to the ulcerative process.

Endocarditis may be acute or chronic. In some instances it may be primary, but in most cases is secondary to an infectious process.

Primary endocarditis.—Luschka⁶ was the first to describe certain hemorrhagic tumors at the margins of the heart valves in new-born infants. More particularly he described these bullæ as occurring on the mitral valves. Parrot⁷ made a thorough investigation of this subject. He observed that hemorrhagic tumors from the size of a pinhead to that of a pea were not infrequently to be found at the margins of the valvular segments. These extravasations, which he attributed to the rupture of intravalvular blood vessels, are covered by the endothelial membrane. They occur more frequently at the mouths of the great vessels. Tracing their subsequent course Parrot observed that they might proceed in either of two ways. (1) By a process of absorption they sometimes disappeared with consequent thickening and induration. (2) Their contents became replaced by a hard mass. In the latter group of cases the primary stage of transition consisted in a proliferation of connective tissue cells at the margin of the tumors, this stage being succeeded by organization of the tumor mass. It is evident that this process, resulting in shortening and thickening of the valve segments and in the production of verrucose lesions of endocarditis, is purely reactionary in nature and that it is uncomplicated by foreign agencies such as bacteria. It is a factor and was recognized as such by Henoch,⁸ although latterly habitually disregarded—in the etiology of endocarditis.

Bacterial agencies.—On the other hand, the activity of bacteria in the causation of endocarditis is established beyond question.

THE HISTORY of the chapter dealing with the bacteriological research in the realm of endocarditis is most interesting.

Vieussens's discovery, in the latter half of the seventeenth century, of the anatomy of the heart gave the required impetus to the study of this organ. Immediately diagnostic means were sought, with the result that palpation, percussion and auscultation were quickly introduced. Albertini, Corvisart, Laennec, Skoda and many others studied cardiac symptomatology and pathology. Rheumatism and scarlet fever were recognized as etiological factors by Kreisig and Bouillard.

In 1855-1856 Rokitsky⁹ and Virchow published the first reports of microscopical observations in endocardial lesions. But to Winge¹⁰ and Heiberg¹¹ is due the credit of giving the first definite information. Winge's case (1869) was a malignant endocarditis following an abscess of the foot; Heiberg's (1872) a malignant endocarditis secondary to puerperal septicemia. In

both cases the microscope revealed entities which in the light of our present knowledge were probably micrococci, but which the discoverers believed were leptothrix chains. In 1873 Eberth designated 2 cases as diphtheritic. Various investigators in the next few years reported cases of bacterial endocarditis. Klebs in 1878 published 27 cases in which he had found bacteria. In 1881 Litten attributed all cases of endocarditis to bacteria. Streptococci and staphylococci were positively identified in endocarditic lesions by Philippaux in 1885. Since that time the variety of bacteria recognized has constantly increased—including the pneumococcus, gonococcus, tubercle bacillus, and pyocyaneus bacillus.

Experimental endocarditis.—Winge and Heiberg introduced particles of the embolic masses obtained from their cases into the bodies of rabbits and failed to cause endocarditis (no vulnerable point existing in the endocardium). By mechanically wounding the cardiac valves and then introducing bacilli into the circulation, Rosenbach, Wyssokowitsch and Orth, Pruden, Michaelis¹² and others caused endocarditis with widely different bacilli. My own series of experiments embrace positive results with the streptococcus, staphylococcus, pneumococcus (all previously performed by others), and tubercle bacillus, typhoid bacillus,^{13, 14} bacillus pyocyaneus (original cases).

Bacterial endocarditis occurs in childhood as in adult life. In fact, as I have previously remarked, the delicate endocardial tissues of childhood offer less resistance to attack than do the mature structures of adult life, and are consequently an easier prey for bacteria. The extensive researches in this field indicate that many bacilli possess the power of successfully attacking the endocardium—probably all varieties which for any cause are pathogenic for the individual and which come into contact with the endocardium under favorable auspices; that is when a locus minoris resistentiæ is present.

In a previous paper,¹⁵ "The Etiology of Endocarditis with Especial Reference to Bacterial Agencies," I have reached certain general conclusions as to the various causes of endocarditis and have presented therein the following scheme of classification: (1) Congenital and infantile endocarditis (defective development, simple reparative endocarditis—and unknown causes). (2) Endocarditis due to known bacterial agencies (streptococcus, staphylococcus, tubercle bacillus, pyocyaneus bacillus, etc.) (3) Endocarditis associated with definite diseases presumably of a

bacterial nature; but of which the bacterial agents are still unknown (rheumatism, chorea, syphilis, the exanthemata, etc.). (4) Endocarditis due to mechanical or chemical insults (blows, strains, excretory products, alcohol, atheroma, etc.).

While examples of all of these classes may occur in infancy and childhood, the relative frequency of their occurrence presents decided variations from that existing in adults, and the different conditions prevailing likewise exert a decided influence.

In childhood the endocardium, as all of the tissues, has less power of resistance than in adult life and accordingly succumbs to attack more readily. Again, congenital defects sometimes exist which at once furnish a weak spot vulnerable to intercurrent factors. Children are the chief sufferers from the exanthemata and endocarditis secondary to this group of diseases is practically exclusively limited in its inception to the epoch of childhood. About puberty great demands are made upon the heart, and here again the endocardium may be affected. There is in infancy a not insignificant number of cases of congenital endocarditis of a severe grade which never attain adult life. In fact of the severe cases of congenital endocarditis, others than those implicating the pulmonic orifice rarely exceed the age of twelve. The predisposition to occurrence in certain conditions—for example, with rheumatism—is vastly greater in childhood than in adult life. Malignant endocarditis is exceptional in infancy and rare in later childhood; when it does occur it is most frequently associated with rheumatism. From the atheromatous ravages of advanced age alone the child completely escapes. But the effect which depraved systemic conditions in the mother—alcoholism, metallic poisoning of the blood, etc.—may exert on the endocardial structures of the fetus can at present only be conjectured. That bacterial endocarditis may occur in the embryo I see no reason to deny.

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Vaccinal Immunity.—In a series of 8 cases, A. Besson (*Jour. Sci. Méd. Lille*, January 3, 1903) successfully revaccinated two after an interval of a year and a half, three after two years, two after three years and one after four and a half years; and out of six patients who had had smallpox, vaccination was perfectly successful in one who had been affected with the disease ten years previously. He, therefore, draws the conclusion that while vaccination may, in the majority of cases, confer immunity for a period of time varying from five to ten years, immunity may be of very short duration in a certain proportion of cases; therefore, during an epidemic of smallpox, it is but a measure of prudence to submit to revaccination unless a successful vaccination has been performed a year prior to the outbreak.—*Medical News.*

The Casein of Milk in Powdered Form.—In the *Montreal Pharmaceutical Journal* for November, 1902, it is stated on the authority of the *Scientific American* that the problem of separating the proteids from milk after the fat has been removed has been solved. The process consists in exposing the milk to heated sterilized air, while it is violently agitated. In this manner the water is gradually driven off and the milk is reduced to about one-sixteenth of its volume. As the product becomes concentrated the temperature becomes lower. When it is reduced to a pasty mass it is allowed to fall into drums in which there is an air-blast. In this receptacle the mass is still further deprived of moisture, when it is transferred to other drums, in which sterilized air is forced through a central shaft having lateral arms extending down into the mass, where the constant rolling of the drums exposes all parts to the desiccating air. When the product is dry it is conveyed to a grinder, which reduces it to the consistency of corn-meal. The product is known as nutritium, and its manufacture is said now to be a flourishing industry.—*Medicine.*

A CASE OF SELF-INDUCED CYSTITIS DUE TO THE COLON BACILLUS.*

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J. F., a boy of about fourteen, was suddenly taken sick on October 26, 1901, with a severe chill, which lasted half an hour. In addition he had pain in the back and suprapubic region, ardor urinæ, vesical tenesmus, frequent and bloody urination, the blood appearing with the last few drops of urine. His temperature was 103° F. A diagnosis of acute cystitis was made. Calomel and soda, copious draughts of flaxseed tea, and soda bicarbonate, dissolved in vichy, were ordered. The following day his temperature was normal. Microscopically his urine showed large amounts of pus, numerous microorganisms, an unusually long, rod-shaped one predominating. Salol and urotropin, each five grains, were given and continued until November 1st. During this period the temperature ran an irregular course. Dr. John G. Clark saw the case in consultation about this time and confirmed the diagnosis.

From November 1st to 5th the bladder was irrigated daily with normal salt solution, followed by four ounces of one-half per cent. solution of protargol, which was allowed to remain in the bladder. After November 5th irrigations of boric acid solution were employed.

A specimen of urine, sent to the Philadelphia Clinical Laboratory November 5th, contained the bacillus coli communis almost in pure culture. The bacillus subtilis and a few saprophytic

*Read by Dr. Levi before the Philadelphia Pediatric Society, February 10, 1903.

cocci were also present. Another specimen sent on the following day showed colon bacilli in abundance, and after a few days growth in the urine they were found in pure culture. We had opportunity to confirm these results at the University Hospital.

In less than four weeks the urine was free from pus and bacteria, and the patient was practically well. The temperature remained normal from the time the irrigations were begun. Convalescence was uncomplicated except for one day, when the patient had some pain and tenderness in the left kidney region and pyonephrosis was feared.

Six days after the onset of the cystitis this history was obtained:—While in the bath room, two days previous to his chill, (October 24th), he came across a small rubber syringe (an ordinary soft rubber ear syringe) with a long, soft rubber nozzle, and out of curiosity, to see if he could force water into his bladder, he filled the syringe with water from the bath tub, inserted the nozzle in his urethra, and to his complete satisfaction, injected the syringe full of water into his bladder. The syringe which he used was one that his mother employed to give his infant sister enemata for overcoming constipation.

The patient for the first six days denied absolutely that he had done anything that might account for his condition, then he confessed, gave the above story, and admitted that he masturbated. As to whether he inserted the syringe into his urethra merely out of curiosity, or whether it was some form of sexual perversion or autoerotism, as it is styled by Ellis, cannot be settled definitely and absolutely.

In brief, we find that the patient infected his bladder, through his urethra, by the use of the nozzle of a syringe, which was itself infected from the rectum of his sister, and thus produced a cystitis, which, we think, we are justified in saying was due primarily to the bacillus coli communis. The colon bacillus is conceded to be the microorganism most frequently found in the urine of cases of cystitis, but that it is the primary factor is not generally believed. This is demonstrable by quoting a few lines from Lartigue: "A review of the investigations of Albarran and Halle, Rovsing, Morelle, Krogus, Melchior, Brown and Douglass, as well as my own experiences, leads to the conclusion that the colon bacillus is, in cystitis, much more often the exciting agent than in any other class of lesions; but that it is the most common bacterial factor, I am inclined to doubt. It is more probable that

it is, as elsewhere, a frequent invader of the bladder, especially where changes have already been induced by other microorganisms, such as the pyogenic cocci."

Two other cases in which the colon bacillus was the primary factor in causing cystitis, demonstrate the fact that possibly this condition is more common than we are led to believe. Although these cases occurred in adults, we take the liberty of citing them as examples.

Mrs. S., aged sixty-five, was under treatment for glaucoma. Her urine was frequently examined and found free from albumin, sugar, pus and bacteria. She was suddenly taken ill with a chill, a temperature of 102°F., and severe pain in the left kidney region. The kidney was enlarged, palpable and tender. On the second day her urine showed albumin 25 per cent. by bulk, pus and bacteria, and had a fecal odor. A specimen of the urine was examined and a pure culture of the colon bacillus was obtained. The case was diagnosed, acute abscess of the kidney due to the colon bacillus, with rupture into the ureter, producing a cystitis. Under treatment the patient made an uneventful recovery. The diagnosis was confirmed by Dr. John G. Clark. This case differs from the first only in its manner of production. Here the bladder was infected per ureter; in the boy infection was per urethram.

The other case was in a man, Mr. L., aged fifty-six, who for some years had typical attacks of nephritic colic, frequently passing small calculi and blood in his urine. A skiagraph was taken, but was negative. He also suffered from retinal hemorrhage. Toward the termination of his disease he had an intermittent pyuria, which had a foul fecal odor, alternating with clear urine, undoubtedly due to a blocked ureter. Whenever the stone was dislodged, it allowed the pus which had accumulated above it to discharge into the bladder and set up cystitis, of which he had the characteristic symptoms. The urine showed a bacillus coli communis infection. Death occurred from profound sepsis. The patient had refused operation for nephritic and ureteral calculi twenty-two months before death. The diagnosis in this case was confirmed by Dr. Howard Kelly, of Baltimore, and Dr. Judson Daland, of Philadelphia. This case also illustrates, as does the last patient, cystitis due to bacillus coli communis infection through the ureter.

The normal habitat of the colon bacillus is undoubtedly the intestinal canal of the human being (although it has been found in

some of the lower animals) where it usually exists as a relatively harmless, nonpathogenic microorganism. It is likewise found in the discharges from the alimentary tract and consequently can be obtained in culture from the areas surrounding the anus, likely to be contaminated by the fecal discharges, such as the skin of the buttocks, the vulva and vagina, and in rare cases the prepuce and anterior urethra. When it exists in these localities it exhibits, as a rule, the same characteristics as in the intestinal canal; it has a low virulence and is nonpathogenic. This bacillus, so abundant in our bodies, requires but little to become virulent, mere transportation to abnormal localities or lessening of the vital resistance of the part, is all that seems necessary. From the anatomical arrangement of the external genitalia, it is easily seen why the colon bacillus should be found more frequently in the urine of the female than of the male.

As to the modes of entrance of the colon bacillus into the bladder, we can consider two main divisions:

(1) From without, that is, through the urethra. This can be brought about, as seen in the first case described, by use of infected instruments or foreign bodies introduced into the urethra, or the bacillus may work its own way through the urethra, when the area surrounding the urethra is infected. This latter is seen especially in the female.

(2) From within. (a) Through renal tissue. This has been demonstrated experimentally, by tying the intestine at the anus and the urethra. The colon bacillus was found in the bladder and kidney. The peritoneal fluid remained sterile, thus proving that the transmission of the colon bacillus did not occur directly from the intestine to the bladder. (b) By contiguity, when the infection comes directly from the intestinal tract to the bladder.

In the case of the boy, the infection came from without and is an example of the first division. In the other 2 cases the infection occurred undoubtedly through the renal tissue, and they are, therefore, examples of the first class of the second division. Brown has demonstrated by his researches that the first method, through the urethra, is the most common mode of infection of the bladder by the colon bacillus.

In the 3 cases mentioned it was a strikingly noticeable fact that the symptoms were milder, in general, than in similar cases where the streptococcus or staphylococcus is the causative agent.

In other words, these cases appear to demonstrate that infection by the colon bacillus is not so virulent as the ordinary pyogenic infections.

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Contributions to the Functional Examination of Deaf Mutes in Denmark. — Professor Schmiegelow has examined 185 pupils from deaf mute asylums in Denmark. Of these, 51 (28 per cent.) were found to be absolutely deaf, but 133 (72 per cent.) had more or less tone-hearing power. These residua were tested by Bezold's continuous series of tones, and an interesting comparison is made between the ranges of audition (amount of residual scale heard) of those hearing various vowels and those unable to do so. Among the 185 pupils, 19 were found to be suffering from chronic fetid purulent otorrhea, depending on median otitis, with polypi and caries of the ossicles and petrous bone, of these dangers the guardians of the pupils seem to be quite ignorant. Others had occluding masses of cerumen, foreign bodies in the ear, post nasal adenoid vegetations, and various chronic and acute affections of the nose and nasopharynx. On the strength of these observations, he insists very strongly on the obvious necessity for the appointment of aural surgeons to all institutions for deaf mutes, and for the inspection of all pupils, at least once a year.—*Canada Lancet.*

INVERSION IN THE TREATMENT OF ACUTE PULMONARY EDEMA IN YOUNG CHILDREN, WITH REPORT OF A CASE.*

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Mechanical measures are often most helpful adjuncts to other treatment in various abnormal conditions of the organs and inversion has long been used in aiding the expulsion of foreign bodies from the pharynx and larynx as well as in the cerebral anemia of threatened death during chloroform narcosis. In the modified form also, of laying the child face downward on the knees of the nurse with the head lower than the hips, it has been found helpful in cases of acute bronchitis or bronchopneumonia where the profuse secretion of the bronchial mucosa cannot readily be forced upwards against the action of gravity, owing to feeble cough or the general exhaustion of the infant. Its employment, heretofore, in acute pulmonary edema has not, however, been revealed by a fairly comprehensive search of the literature of the subject. It therefore would seem advisable to place on record an instance where the prompt use of this simple procedure seems to have been largely conducive to the recovery of the patient.

H. M., female infant of thirteen months, patient in the Infants' Hospital, Randall's Island, had one month before, made an uneventful recovery from a pneumonia involving the upper lobe of the right lung. Ten days before the onset of the edema, there had been slight attack of diarrhea which had entirely disappeared and the infant had been apparently well and happy all day. On her return about 4:30 P.M. from an early supper, she was given the usual colon irrigation which she had been receiving once daily since her attack of diarrhea and was prepared for bed. Suddenly, during the undressing she appeared to be drowsy, then sank limp and unconscious into the arms of the nurse. The house physician, Dr. W. B. Allen, was summoned and reached the patient within ten or fifteen minutes, and found the child thoroughly relaxed and unconscious. Breathing was not much accelerated but audibly rattling, face slightly flushed, pulse feeble,

* Read before the Section on Pediatrics, the New York Academy of Medicine, April 9, 1903.

temperature 99.8° F. per rectum. Palpation revealed very marked increase in tactile fremitus, and auscultation gave large and small bubbling râles diffused over both lungs. Dr. Allen with happy inspiration and good judgment, inverted the child and held her head downwards making firm steady pressure over the lungs with stroking pressure over the bronchi toward the head. This resulted in squeezing out quite a little frothy fluid tinged with blood, which ran out of the mouth and nose. Decided relief was immediately noticed by those in attendance. The child was then placed in the bed, the foot of which was considerably elevated. Aromatic spirits of ammonia, strychnin and brandy were administered freely and mustard pastes were applied to the entire thorax until a bright redness of the skin was produced. In about one hour the patient was able to cry a little and at 9:30 P.M. the râles had cleared up very markedly and the patient was resting comfortably with temperature 97.8° F. Stimulation was continued during the night. Calomel in fractional doses followed by castor oil and an enema resulted in undigested offensive stools. The next morning the child was bright, lungs free from râles, and she was practically well, in which condition she has remained since, there having at no time been any evidence of cardiac affection.

Acute edema of the lungs without discoverable cause has not been uncommon among the patients of the institution and as several previous cases had died despite the same medication it seemed evident that the expression of the rapidly accumulating serum from the bronchi was a life saving measure, inasmuch as it gave temporary relief and allowed time for the action of other remedial measures. The undigested and offensive stools which resulted from purgation, would suggest acute indigestion as one of the possible etiologic factors in acute pulmonary edema of young children.

The Gelatin Treatment of Melena Neonatorum.—Holt-schmidt (*Münch. Med. Wochenschr.*, January 7, 1903) reports 5 cases of melena neonatorum treated by hypodermic injections of a 2 per cent. solution of gelatin in normal salt solution, 15 c.cm. being injected, usually in two places to avoid tension. The hemorrhage was checked in each case after the first or second injection and all five patients recovered. Of the previous 14 cases in the same clinic, which were not treated by gelatin, 7 were fatal.—*The Lancet*.

CONGENITAL HYPERTROPHIC STENOSIS OF THE PYLORUS.*

BY DR. HEZEKIAH BEARDSLEY,

New Haven, Conn.

A child of Mr. Joel Grannis, a respectable farmer in the town of Southington, in the first week of its infancy, was attacked with a puking, or ejection of the milk, and of every other substance it received into its stomach almost instantaneously, and very little changed. The feces were in small quantity and of an ash color, which continued with little variation till its death. For these complaints a physician was consulted, who treated it as a common case arising from acidity in the prima via; the testaceous powders and other absorbents and correctors of acid acrimony were used for a long time without any apparent benefit. The child, notwithstanding it, continued to eject whatever was received into the stomach, yet seemed otherwise pretty well, and increased in stature nearly in the same proportion as is common to that state of infancy, but more lean, with a pale countenance and a loose and wrinkled skin like that of old people. This, as nearly as I can recollect at this distance of time, was his appearance and situation when I was first called to attend him; he was now about two years old. I was at first inclined to attribute the disorder to a deficiency of the bile and gastric juices, so necessary to digestion and chylification, joined with a morbid relaxation of the stomach, the action of which seemed wholly owing to the weight and pressure of its contents, as aliment taken in small quantities would often remain on it, till, by the addition of fresh quantities, the whole, or nearly all, was ejected; but his thirst, or some other cause, most commonly occasioned his swallowing such large draughts as to cause an immediate ejection, and often-

* Note by Professor William Osler. Cautley and Dent in a recent paper (*Lancet*, December 20, 1902) state that the first record of this disease, which is now exciting a good deal of interest, dates back to 1841. The report here given by Dr. Beardsley of a very clearly and accurately described case, is, I think, worth republishing. It appears in the earliest volume of medical transactions issued in this country, entitled "Cases and Observations by the Medical Society of New Haven County in the State of Connecticut," New Haven, J. Meigs, 1788.

times before the cup was taken from his mouth. It did not appear that he was attended with nausea or sickness at his stomach, but he often complained that he was choked, and of his own accord would introduce his finger or the probang, so as to excite the heaving of the stomach and an ejection of its contents; the use of this instrument was generally necessary if the stomach did not of itself, in a few moments, discharge its contents, the choking would in that short space of time become almost intolerable, which by this discharge was entirely removed. In this situation, with very little variation of symptoms he continued till death closed the painful and melancholy scene, when he was about five years of age. He was uncommonly cheerful and active considering his situation. A number of the most respectable medical characters were consulted and a variety of medicines was used to little or no effect. His death, though long expected, was sudden, which I did not learn till the second day after it took place. This late period, the almost intolerable stench, and the impatience of the people who had collected for the funeral prevented so thorough an examination of the body, as might otherwise have been made. On opening the thorax, the esophagus was found greatly distended beyond its usual dimensions in such young subjects; from one end to the other of this tube, between the circular fibres which compose the middle coat, were small vesicles, some of which contained a tablespoonful of a thin fluidlike water, and seemed capable of holding much more. I next examined the stomach, which was unusually large, the coats were about the thickness of a hog's bladder when fresh and distended with air; it contained about a wine pint of a fluid exactly resembling that found in the vesicles before mentioned, and which I supposed to have been received just before his death. The pylorus was invested with a hard compact substance, or schirrosity, which so completely obstructed the passage into the duodenum, as to admit with the greatest difficulty the finest fluid; whether this was the original disorder, or only a consequence, may perhaps be a question. In justice to myself I ought to mention, that I had pronounced a schirrosity in that part for months before the child's death. On removing the integuments of the abdomen, I was struck with the appearance of the vesica fellis, which was nearly five inches in length and more than one in diameter; it lay transversely across the abdomen, and was bedded into the small intestines, which were sphacelated wherever they came in contact with it; its

contents were rather solid than fluid, and resembled flesh in a highly putrid state; its color was that of a very dark green, like the juice of the night-shade berry, and a fluid of the same color exuded through its sphacelated coats. The necessity there was of interring the body that evening, put a stop to any further examination.

I should have been happy, gentlemen, if I had been able to have given you a more particular and accurate description of this very singular case, but the above mentioned circumstances forbade.

Ozone in the Treatment of Whooping-Cough.—Delherm (*Bull. Gen. de Therap.*, Vol. CXLIV., 1902, p. 875) states that although ozone is not a specific against whooping-cough, it has a marked antispasmodic power which justifies its employment in this affection. It is without action in the catarrhal stage at the beginning and at the end of the disease; it should be used only during the period of coughing in the average dose of three or four inhalations (of mildly ozonized air or oxygen) for ten minutes in twenty-four hours. By this treatment the attacks of coughing become less frequent, and at the end of ten or twelve days the patient is often entirely relieved or has not more than 2 or 3 attacks during twenty-four hours.—*American Medicine*.

Paresis of Retrocervical Muscles Following Diphtheria.—In the *Lancet* of February 7, 1903, Dr. A. J. Sharp records the following case: A. M., aged two, was first seen on March 21, 1902, complaining of sore throat. Next day the case was notified as diphtheria and 4,000 units of serum injected. Convalescence was speedily assured, and a final visit paid on March 30th. On April 26th she was brought "because she could not hold her head up." This had been noticed about a week. The head drooped towards the sternum, and could be held up voluntarily only for a few moments by inducing her to make a special effort; it could, however, be rotated from side to side without so much effort. There was no rigidity, and the head could be placed passively in any position without difficulty. There was no pain nor tenderness and no sign of disease about the spinal column. The thoracic vertebræ showed a flexible curve convex backwards, and the abdomen was protuberant.

The mother stated that the child had always stooped about the shoulders, but that the drooping of the head was something quite new. The patellar reflexes were absent, the gait extremely ataxic, and there was marked "nasal" phonation with regurgitation of fluids through the nose; the pupils reacted very sluggishly to light and accommodation.

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HOSPITALS AND SANATORIA FOR TUBERCULOUS CHILDREN.

In the prevalent discussion of the problem of the control of tuberculosis among our population, but little mention is made of measures for the proper care of tuberculous children. That there are in this State alone many thousands of children suffering from one or another form of tuberculosis is familiar to all who have any knowledge of the subject. That these thousands demand care not only for their own interest but for the sake of the population at large will hardly be questioned.

The great majority of these children are, however, not the victims of pulmonary tuberculosis, as it occurs in adults, but suffer from bone or lymph node tuberculosis. In the usual classification and distribution of cases they therefore fall to the care of the orthopedic or general surgeon. This fact, in part at least, is the explanation of the failure to give proper consideration to their claims, for thus far the warfare against tuberculosis has been largely waged by physicians.

The time seems, however, to have come for measures to be taken in the interest of the particular classes of patients indicated above. There are many reasons for such steps. First of all, to prevent the further spread of the disease. We have undoubtedly been accustomed to consider patients suffering from bone or lymph node tuberculosis less dangerous to the community than those with pulmonary disease. Certainly many investigations have shown the pus from bone and lymph node cases to contain relatively very few bacilli. Still it contains some and may be a source of infection. In the recent treatise of Preisich and Schütz (*Zeitschr. f. Tuberk. und Heilstätt.*) it was noted with interest that these cases were considered quite as infectious as the pulmonary form. When we consider the carelessness with which discharging abscesses in these patients are often treated, and the uncleanly habits of children, grounds for this view are not altogether lacking.

Secondly, the present tendency in the treatment of tuberculous affections of the classes in question demands special institutions for them. Only in hospitals or sanatoria can proper surgical care be given to the children of the poor suffering from tuberculosis of these forms, if surgical treatment is called for. More and more marked becomes the trend of thought away from operative methods and toward those embraced in protection, fresh air and good food. Operation for bone or lymph node tuberculosis in children is, even by the surgeons, regarded as a last resort. We have recently found the physician (Guthrie, *ARCHIVES OF PEDIATRICS*, April, 1903) challenging the value of

surgical treatment in the one form of tuberculosis (peritoneal) in which surgery has long exercised unquestioned supremacy.

However that question may be determined, it is surely established that whatever the form of tuberculosis, the safest and surest agents for its cure are fresh air and good food. Both have been employed by our orthopedic institutions to some extent. Most of the orthopedic hospitals in New York City have country branches to which some of their patients are sent for part at least of the year. The practise must be extended both in the number of patients and the time spent in the country.

In our public institutions and still more among the poorer classes of the population are great numbers of children suffering from these forms of tuberculosis who receive no special care but are allowed to steadily fail, till death relieves them, meanwhile polluting their surroundings and doubtless conveying the disease to others. For these patients the time is ripe to demand special institutions, wherein no known method of treatment which has proven valuable shall be discarded, but in which the patients shall be assured of the air and food in which lie their best hopes of health.

Nutrition in the New-Born. — To control Schlesinger's statement that undiluted cow's milk is the most rational artificial diet for nurslings, Rissmann and Pritzsche (*Arch. für Kinderheilk.*, Vol. XXXIV., 1902, p. 249) have tried this method of feeding for nineteen new-born children, using exactly the same precautions which Schlesinger advises. But few of these children gained in weight at all and only one seemed to be in a thriving condition; they conclude that it would be unwise to start with undiluted milk immediately at birth. They do not agree with investigators who advise considerable dilution, but instead propose the use of a dilution at birth of one-half, gradually diminishing this so that the child is getting full milk by the time it reaches the age of three and one-half months. To support this advice a number of chemieal and physiologic calculations and observations are given.—*American Medicine*,

Bibliography.

Therapeutics of Infancy and Childhood. By A. Jacobi, M.D., LL.D. Third edition. Pp. xvii.-560. Philadelphia and London: J. B. Lippincott Company. 1903. Price, \$3.50.

The two early editions of Dr. Jacobi's *Therapeutics* have been widely circulated and this, the third, is issued to meet the demand of what the author believes is the approval of the profession in his attempt at founding therapeutics on etiology. The author finds no reason to change his convictions on infant feeding as laid down in previous editions, and while many additions have been made to this and other parts of the book there is no actual alteration in its general character. The work thus remains the personal expression of the belief of its writer in the efficacy of drugs and therapeutic measures in the diseases of infancy and childhood. Two thoughts have to be kept in view in expressing an opinion of Dr. Jacobi's *Therapeutics*. The first is the omniverous reading that must have been done by its author, and second the pleasure he has in giving his reader the results of his extended experience in the treatment of disease. It is easy to see that one who has such a foundation does his work with a happy philosophy as to cause and effect which is attractive if not always convincing.

Dr. Jacobi has gone over his new edition with care. He has not always made decided changes but he has added the views of prominent writers and compared them with his own. Dr. Rotch, he believes, has done good by the laboratory methods, but Dr. Jacobi still advocates what he taught years ago, as "they [infants] do better with less fat than under the influences of laboratory analyses, no two of which are alike, is generally considered their due." Fresh cow's milk that contains but little fat is advocated as the best for infant feeding.

Serotherapy, organotherapy, melena neonatorum, trismus, pseudoleukemia, Addison's disease, tuberculosis, paratyphoid fever, and Weil's disease are a few of the headlines that catch the eye and show, as the author states on page 307, "The world is moving."

Typographically the book is attractive and an improvement on the earlier editions. An index of authors and one of headings completes the volume. Some mistakes have crept in and Dr. H. L. Coit may not be recognized as N. B. Coit and many readers will ask what Charles A. Dana had to do with urethan.

All in all there is no book like this volume. It gives so much:

it is so personal and the personality is so suggestive that Dr. Jacobi's portrait seems to face every page.

Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition. By Prof. Dr Carl von Noorden. Authorized American edition, translated under the direction of Boardman Reed, M.D. New York : E. B. Treat & Co. 1903. Part I., price, 50 cts.; Part II., price, \$1; Part III., price, 50 cts.

Part I. *Obesity; The Indications for Reduction Cures.* The author gives in this brochure of 60 pages exactly what the titles of the series and volume indicate, a treatise on the indications for reduction cures in obesity from the standpoint of a clinician. In the first chapters the varying degrees of simple obesity in otherwise healthy subjects are discussed. The following chapters are devoted to obesity complicated by other disorders, such as chronic heart or arterial disease, diseases of the kidneys or lungs, chronic rheumatism, gout, etc. Throughout the book one is impressed with the fact that in a few pages he is getting the fruit of wide and carefully considered experience. Thus with relation to gout the author remarks that in gouty subjects we frequently find a variety of disorders that call for a reduction cure with much greater urgency than the uric acid diathesis itself. On the next page he says that . . . we have become accustomed in patients afflicted in this way to consider the condition of the heart more than the uratic diathesis and to arrange our treatment accordingly. The little volume is therefore calculated to be of help to every practising physician interested with the problems with which it deals. The paper and press work of the book are excellent and altogether it will be found well worth attention.

Part II. *Nephritis.* In this little volume of 112 pages the author gives the results both of experimental work along the line of the problems presented by diseases of the kidneys and also the results of wide experience in the practical treatment of cases. As the outcome we have a practical treatise of great value. Many of the opinions expressed are radically at variance with established practice. Thus the value of a purely milk diet in cases of nephritis is not merely questioned, but it is proven that such practice may be positively harmful to some cases. The lesson is impressed upon us that we must not blindly follow the teachings or traditions of text-books. If we are to be successful in the man-

agement of our cases, we must test our treatment by the results of its application. From this standpoint von Noorden tells us that there are cases of nephritis in which alcohol may do good, and on the other hand cases in which the popular practice of flushing the system with water can do harm. The problems of dietetics in these cases are discussed in a very instructive and at the same time entertaining way. It is the most instructive treatise upon its subject that we have seen.

Part III. *Membranous Catarrh of the Intestines.* In the preparation of this volume von Noorden has had the aid of Dr. Carl Dapper. The pathology of the disease, by reason of its intimate relation to the treatment is discussed at length. According to the authors' views the essential elements in colica mucosa are constipation and excessive irritability or excitability of the mucous glands of the large intestine. The treatment advocated is, in brief, directed to the relief of the constipation. The authors report a long series of cases treated by their method with gratifying success. Their statements will doubtless carry all the more weight by reason of their frank admission of failure in some cases. Like the preceding volumes this is eminently fitted to meet the needs of the general practitioner.

The International Medical Annual: A Year Book of Treatment and Practitioner's Index. By Thirty-four Contributors. 1903. Twenty-first year. Pp. xi.-739. Illustrated. New York and Chicago: E. B. Treat & Co. Price, \$3.00.

The twenty-first year of this well-known annual opens with a general summary of the year's work; the review of therapeutic progress, which is edited by Dr. H. A. Hare, being the first of this important epitome. Spinal anesthesia and saline infusions are considered to be therapeutic measures that have been too enthusiastically received, but which in spite of this over-enthusiasm continue to be, even with their limitations, important therapeutic agencies. The articles on X-rays, high-frequency currents and light treatment, by MacIntyre, and that on electro-therapeutics by Rockwell, are most timely. The diseases of children are not under the charge of Dr. Chapin, except the one subject of infant feeding. In the compilation of an annual it may be easier to arrange the headings when the diseases of childhood are described, or omitted, by the medical editors, but the volume lacks in completeness by the change. The illustrations and letter-press deserve commendation,

The publishers make this the most popular of the smaller annuals by maintaining its standard.

Progressive Medicine. Fifth Annual Series. Volume I, March, 1903. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by **Hobart Amory Hare, M.D.**, assisted by **H. R. M. Landis, M.D.** Pp. vi.-450. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1903. Price, per volume, \$2.50. Per annum, \$10.00.

Two sections of this volume claim particular attention, viz.:—the chapter on infectious diseases by Herrick and the one on diseases of children by Crandall. Herrick gives considerable space to show the value of diphtheria antitoxin, and states that he does so because of the skepticism that still exists both among the laity and among well-informed physicians. The quotations made do much to dispel this doubt for most of them advocate a free use of antitoxin no matter what other treatment is pursued. The serum therapy of typhoid fever is as yet in the laboratory period. Crandall's editorship covers a wide range, extending from hemorrhages of the newborn infant to arthritis deformans. Infant feeding, diseases of the alimentary tract, nephritis, tetany, and the blood in infancy, are described from current literature. Hektoen's explanation of the studies in the specific properties of the various tissues and fluids of the body elucidates the recent advances in chemical pathology and calls to notice this little-understood branch of research.

Saunders' American Year Book. The American Year Book of Medicine and Surgery for 1903. A yearly Digest of Scientific Progress and Authoritative Opinions in all branches of Medicine and Surgery. Arranged, with critical editorial comments, by eminent American specialists, under the editorial charge of **George M. Gould, A.M., M.D.** In two volumes. Vol. I., General Medicine. Pp. 691. Illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1903. Price, per volume, \$3.00.

The American Year Book does not stand in need of an extended review. The department of pediatrics is edited by Drs. Starr and Hand. The literature of the year is important and the editors have condensed a vast amount of material from the medical periodicals into the fifty-six pages of their department. The book is a good one in every way.

Society Reports.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting of February 10, 1903.

DR. D. J. M. MILLER, CHAIRMAN.

DR. M. B. FUSSELL exhibited

A CASE OF CONGENITAL HEART DISEASE

in a boy five years of age. Two previous children of the child's mother had been normal. The mother had been well throughout this pregnancy and at the time of the child's birth. The child had presented no evidences of disease at birth, and there was no record of the condition of his heart until early in 1900. The mother stated that when the child was very young he frequently had attacks of cyanosis and dyspnea, and at such times he became semiconscious. The attacks had increased in severity, and would come on particularly when he was running about or when he became angry.

The physical examination made when the child was two years and three months old showed marked clubbing of the fingers, moderate enlargement of the cardiac dullness upward and to the right, a rough systolic murmur over the entire anterior portion of the chest, its greatest intensity being at the upper part of the heart dullness. The child has been occasionally seen since this time. He has had well marked diphtheria, but passed through the attack without a bad symptom, antitoxin being used.

In November, 1902, it was noted that since the previous examination the child had developed, but that the attacks of dyspnea, cyanosis, and syncope were becoming more marked, the boy being unable to walk a square without the occurrence of an attack. They would also frequently occur when he was apparently entirely quiet. He showed marked cyanosis, with clubbing of the fingers, dilatation of the superficial veins, prominence of the abdomen, a bowing forward of the spine, and a rounding of the chest. The heart dullness had increased markedly toward the right. The pulse was equal on both sides. The pupils were normal. There was no capillary pulse. The heart's action was slow and regular. The murmur was present as previously described, being marked over the aortic cartilage. The second sound in this region was also accentuated. Both the murmur and the sec-

ond sound were less loud over the pulmonary cartilage. The murmur was indistinctly heard in the vessels of the neck; the point of greatest intensity of the murmur was at the junction of the first and second parts of the sternum, while the second sound was loudest between the nipple and the sternum in the fourth interspace. The jugular veins did not pulsate. The edge of the liver could be plainly felt; the spleen was not palpable. There was no edema. The lungs were normal. When exhibited to the Society, the conditions were much the same as those last noted.

DR. HAMILL reported

A CASE OF CONGENITAL HEART DISEASE.

The patient was a boy aged nine years. He had been cyanosed since a few months after birth. He had always been dyspneic, but the dyspnea had become much more marked in the past six months. He was subject to frequent attacks of epistaxis. He was well developed and had advanced well in his studies. He had precordial pain and cardiac palpitation. He had no defect of vision.

When seen in the dispensary two days before his death, his lips and all visible mucous membranes were purplish black; the entire skin of his body was a dull leaden color with intense congestion of his hands and feet, the extremities of the fingers and especially the nails being of much the same color as the lips. His dyspnea was extreme; his cough violent and he was expectorating large quantities of liquid blood and having epistaxis. During his coughing he had severe precordial pain which caused him to clutch his precordia.

The chief points of interest in the physical examination were the extreme pulsations of the veins of the neck; the presence of a tortuous and anomalously located external carotid artery which was situated on the left side and almost underneath the mastoid process. It was pulsatory and expansile and about the size of a pigeon's egg. The apex beat of the heart was palpable in the fourth, fifth and slightly in the sixth left spaces three-quarters of an inch outside of the mid-clavicular line. There was no thrill over any portion of the chest. The heart dullness in the final examination began above at the first rib and extended to the right mid-clavicular line and to the left anterior axillary line. On the occasions of the early examinations the only murmur present was a rather faint systolic murmur heard best in the third left interspace close to the sternum. The murmur accompanied the first

part of a divided first sound. On the occasion of the last visit, when the heart was acting violently, there was heard in addition to this systolic murmur a distinct presystolic murmur, having the characteristics of the murmur of mitral stenosis. The first sound had lost its divided character and was short, sharp and high pitched.

An examination of the eye grounds which was made by Dr. Posey, showed the following remarkable condition: The eye-balls were prominent; the conjunctival vessels, both those of the globe and of the lids, swollen, especially the veins, giving the eye a dark purplish appearance. The pupils were large and the media clear. The findings of the ophthalmoscope showed a neuro-retinitis of marked degree. The retinal arteries and veins were greatly swollen and tortuous, resembling large angle worms. The head of the optic nerve was obscured by the swollen retina and there were a few small hemorrhages into the nerve fibre layer of the retina close to the disc. The light reflex from the vessels was greatly broadened, that of the veins the more so. Dr. Posey remarked: "I do not remember ever to have seen retinal vessels of a larger calibre, the retinal veins appearing to be increased to three times their normal size."

DR. J. P. CROZER GRIFFITH referred to the fact that in these cases we can rarely make more than a probable diagnosis. Absolute diagnoses are likely to be found disappointing, if the case comes to autopsy. The last case that the speaker had seen, he did not recognize during life, although he had studied it carefully. The patient was a child five months old, who had had a febrile attack two months before, in which the heart grew very weak without any evident reason. The next day the child was better; but after this it occasionally exhibited some cyanosis with momentary apnea, which appeared to be due to laryngospasm. Dr. Griffith thought that the child had status lymphaticus, as there was no evidence of cardiac disease. Pneumonia, however, came on, and was fatal. During this attack, the child again exhibited pronounced cyanosis. Among other lesions, the post-mortem showed two large openings in the auricular septum.

The speaker believed that the cyanosis in this case was due to the abnormalities in the auricular septum. This case is evidence against the constant truth of the view usually expressed, that cyanosis in congenital heart disease indicates the presence of either an anomalous distribution of the vessels or pulmonary

stenosis. It showed that cyanosis does at times occur in cases of perforate auricular septum. That no murmur was present was to have been expected, as it is very commonly absent with this lesion.

DR. GRIFFITH believed that pulmonary stenosis was present in Dr. Fussell's case, although he did not feel willing to state this positively. The murmur was certainly that of perforate septum ventriculorum, being heard loudest at the middle and the upper part of the sternum. This condition, however, was usually associated with pulmonary stenosis. If one considered that perforate septum ventriculorum was present in the patient exhibited, it was probable that pulmonary stenosis was present also. The cyanosis tended to support this view. As, however, the pulmonary second sound would be feeble if the pulmonary artery were much narrower, we have still to explain the accentuation of the pulmonary second sound. The most probable explanation of this is, of course, the presence of a patulous ductus arteriosus, which allows the aortic blood pressure to act upon the pulmonary leaflets.

DR. EDSALL acquiesced in the view that it is impossible to make a definite diagnosis in most cases of congenital cardiac disease. The doubtful value of the different signs is often illustrated by the directly contrary views reached by different observers of the same case. Dr. Fussell's case had impressed Dr. Edsall as being most readily explained by the presence of congenital mitral disease. This would at once explain the accentuation of the pulmonary second sound and the marked right-sided enlargement. The only fact in the case not readily explained by this suggestion is the situation of the murmur; but it has been repeatedly demonstrated, especially in cases of congenital mitral disease, that a mitral murmur may be loudest at the upper part of the sternum—or, indeed, may be heard only in that situation, and not transmitted to the apex. Mitral disease would seem to be by all means the best explanation for the marked and rapidly increasing enlargement of the right heart.

DR. HAND said that the difficulties in diagnosis during life were somewhat analogous to those sometimes encountered at the autopsy, in endeavoring to explain the physics of whatever condition was found. In the case referred to by Dr. Griffith, the lesion in which was a patulous foramen ovale, the right auricle was hypertrophied and dilated, the pulmonary artery was also dilated, the ductus arteriosus was obliterated, and the left ventricle and

the aorta were hypoplastic. At first it seemed rather difficult to account for this condition of affairs, but the explanation finally considered the most likely was as follows:—Supposing the left auricle to be filled with the normal volume of blood, there were two directions in which the current would flow; the greater part would go to the left ventricle, but a certain part (for illustration, one-fourth) would pass through the interauricular septum into the right auricle, which was at the same time moving the normal amount of blood to the right ventricle. The right heart, then, must dilate and hypertrophy, to receive and move a volume of blood greater by one-fourth than normal; consequently, the pulmonary artery became dilated and the blood-pressure in the lungs became greater than normal. The infarcts that were present in the lungs were probably the result of an increase in this raised pressure, produced by some physiologic act, such as coughing or crying. The rapid respiration might have depended partly upon the infarcts or upon the raised pressure. As the left ventricle did not receive the full amount of blood from the left auricle, it became defective in the development of its chamber and muscle. With the aorta in a similar condition, the general circulation was not sufficient for the proper growth of the body; and a state of malnutrition resulted.

DR. A. A. ESHNER said that on the doctrine of probabilities alone, and particularly in the absence of evidence to the contrary, one would be led to believe that in cases such as that exhibited by Dr. Fussell and that reported by Dr. Hamill, the condition was one of deficiency of the interventricular septum. In the absence of a systolic murmur and in the presence of cyanosis, a deficiency of the interauricular septum was the more probable lesion. In some cases the deficiency involved the septum between both auricles and ventricles.

THE CHAIRMAN said that one must often be struck with the resistance to severe illness sometimes exhibited by these patients. He referred to a case in a woman of twenty-five, who had congenital heart disease with cyanosis and clubbing of the fingers, and who had passed through a severe attack of pneumonia with but little discomfort. The view that Dr. Fussell's case was due to congenital mitral disease appealed to Dr. Miller, particularly because of the marked and increasing enlargement of the right heart. He asked whether the mother of the patient had had rheumatism.

DR. FUSSELL, in closing, said that he hesitated to make a diagnosis of the lesion in the case that he had presented. The difficulties were undoubtedly great. Those that might be met with in the diagnosis of congenital heart disease were exemplified in some specimens that Dr. Fussell had shown to the Philadelphia Pathological Society in 1888. In this instance, the subject was a child that had died at the age of two years. She had presented a loud double murmur, heard over the precordia and, to a less extent, over the entire chest. This child had passed through many attacks of enterocolitis and one typical attack of pneumonia. She ultimately died of cardiac failure. At the postmortem the heart was found to contain three cavities. The two auricles were united into one huge chamber. The right ventricle had received and distributed all the blood, both the aorta and the pulmonary artery being given off from this chamber. The left ventricle was hardly developed at all and had never been functionally active. Of course, the lesion in this case could not even have been guessed at during life.

DR. HAMILL, in closing the discussion, said that an extensive examination of literature had left him with the same impression that one usually gets after listening to a discussion concerning congenital heart disease. He had been driven to the conclusion that one may clinically get the evidences of any size or shape of the heart, and may find a murmur of almost any character, with any of the different congenital lesions. Dr. Edsall's suggestion had made him feel that it is quite possible that a mitral lesion had been present in his case. He had stated that the murmur had been heard in the position in which the murmur of pulmonary stenosis is most common; but the murmur was not of the character usually heard in pulmonary stenosis and, as he had stated, a presystolic murmur had appeared a few days before death. It seemed to him quite possible that, as is frequently the case in mitral stenosis, the murmur had been absent at first and had appeared only as the result of altered mechanical conditions.

DR. HAMILL said that he had reported the case chiefly because of the remarkable condition of the eye-grounds. The appearance of the vessels could best be indicated by quoting the remark made by Dr. Posey when he examined them:—that it was hard to see how they could be so much distended without bursting.

DR. ARTHUR VAN HARLINGEN read, for himself and DR. HENRY K. DILLARD, JR., a paper entitled:

NOTES ON THE EMPLOYMENT OF EPICARIN IN *TINEA TONSURANS*
AND *TINEA CIRCINATA*.

Epicarin is said to be a condensation product of creotinic or creosotinic acid and naphthol, and to contain the properties of creosote and naphthol. It has been employed in a number of cases of ring-worm of the scalp and body occurring in the Children's Hospital, and appears to have a decided value in ring-worm of the scalp, its high penetrating-power when in alcoholic solution being in its favor. In cases of ring-worm of the body and of scabies in which the authors have tested its value, epicarin seemed to be too irritating for satisfactory use.

DR. D. L. EDSALL read a

PRELIMINARY NOTE ON THE NATURE AND TREATMENT OF RECURRENT VOMITING IN CHILDREN.

He referred to the fact that the nature of this condition has not been satisfactorily explained and that the treatment has been correspondingly ineffectual. He reported observations in 6 cases showing that a severe acid intoxication of the type seen in diabetes mellitus had been present in these cases; and that, except in 1 case, treatment directed toward this acid intoxication had had strikingly successful results. In this 1 case the result was still in doubt. The use of rapidly repeated, large doses of diffusible alkali was advised. The treatment should be instituted immediately upon the onset of an attack; or, better, as soon as any prodromes of an attack are observed. Dr. Edsall also made some remarks concerning cryptogenic acid intoxication.

DR. HAND asked how long Dr. Edsall would advise that the use of the large doses of alkali should be continued. In a patient under rather frequent observation, Dr. Hand had had similar results, for a time, from the use of milk of magnesia, which had seemed to abort several attacks when given in dessertspoonful doses before the vomiting was well under way. Lately, however, it had been impossible to give this before the vomiting was in full blast; so he had resorted to copious draughts of salt water (normal salt solution), with the hope of avoiding the development of nephritis, a sister of this patient having died of hemorrhagic nephritis developing during an attack of cyclic vomiting. In this case, as in several others that the speaker had seen, the urine had shown, during the progress of the attack, albumin, cylindroids, red and white blood corpuscles, and renal epithelial cells and casts; in

1 case acetone had been present both in the urine and in the breath, as mentioned by Marfan. The father of one of these patients, himself a physician, called attention to the appearance of a deep purple band, on testing the urine for albumin by contact with nitric acid. Dr. Hand had been unable to determine to what this was due and whether it had any significance; but the father claimed that the child did not begin to improve until this had appeared.

DR. I. VALENTINE LEVI asked whether these large doses of alkali had, of themselves, any tendency to cause gastric or intestinal disturbance.

DR. HAMILL said that our knowledge of the nature and treatment of nutritional diseases was so limited that any contribution to it was of importance. He mentioned a case of his own in which there had been repeated attacks of gastrointestinal disturbance, each lasting for a period of weeks. He saw the child only in the last attack, which had begun with general irritability and had persisted for a fortnight, with increasing depression of health. After this, there had been moderate vomiting; this was followed by general depression, and the child had become decidedly soporose. There was also a decided odor of acetone. The condition had seemed to Dr. Hamill to be distinctly toxic. Dr. Edsall had examined the urine, and had found large amounts of acetone, diacetic acid, and oxybutyric acid present. Bicarbonate of soda was immediately given, in ten grain doses every hour. After ten of these doses had been administered the patient improved to an astonishing degree and seemed to be almost entirely well. The alkali was then continued in smaller doses, the urine being kept about neutral; and the acetone and diacetic acid rapidly disappeared. The speaker asked Dr. Edsall whether he (Dr. Hamill) had not been right in stating that a specimen of urine from this case, examined after two drams of bicarbonate of soda had been given, was still acid. He also said that he believed it to be better to give the alkali very frequently, in doses of moderate size, than to give it in an enormous dose at one time.

DR. J. P. CROZER GRIFFITH said that he welcomed any treatment that promised results in these cases. The cases were always extremely trying, and often dangerous. He had himself been unfortunate enough to see 2 cases die. He had not been able to convince himself that any treatment that had been used could be

really depended upon, except to palliate the symptoms. Morphia hypodermically had given excellent results in some cases; in others, it had entirely failed. In 1 case, Dr. Griffith saw a continuous improvement and a final cessation of attacks under the use of phosphate of soda; and he now wondered whether this salt, which was used in large doses, could have acted chiefly through some alkaline property. The presence of acetone in the urine in these cases had been repeatedly noted, even before Marfan's paper appeared. The meaning of this was, however, entirely obscure; indeed, it seemed doubtful whether it had any importance in relation to the nature of the condition. The explanation given by Dr. Edsall seemed to Dr. Griffith to be a rational one; and he thought that the effects of treatment were certainly promising.

THE CHAIRMAN said that he agreed with Dr. Griffith as to the very unsatisfactory treatment of these cases; he also said that he believed the cases to be of a toxic nature. As an evidence of the latter, he related the case of a boy of eleven years, who all his life had had attacks of recurrent vomiting. Last February, he had a severe attack that lasted two weeks. Sometime after recovery, he was discovered to have a mitral murmur, which had persisted to this day. The attack was accompanied with fever. Somewhat corroborative of Dr. Edsall's views is the fact that the speaker had seen a decided lessening of the frequency of the attacks brought about by the continuous administration of moderate doses of bicarbonate of soda, and by a diet from which the carbohydrates were largely excluded, in the intervals between the attacks.

DR. EDSALL, in reply to Dr. Levi, said that as far as he knew the use of large doses of alkali had caused gastrointestinal disturbance in only one instance—the case of Dr. Sharpless, which was the last one referred to in Dr. Edsall's paper. Dr. Sharpless believed that in this instance the doses used during the interval were too large; the child was receiving a dram three times a day. In the other cases no disturbance was produced by the alkali.

DR. EDSALL agreed with Dr. Hamill that moderate doses frequently repeated were decidedly better than an enormous dose given at one time. He said that he had not meant to indicate that he advised the use of two drams at one dose; he had intended to say that two drams, or about that amount, should be given in divided doses, very rapidly repeated.

As to Dr. Hand's question, the speaker stated that Dr. Pierson,

who had had much experience in using this method of treatment, had written that he continued the use of large amounts of alkali until the symptoms had disappeared, the urine was free from acetone and diacetic acid, and the temperature showed no abnormal variations.

The use of milk of magnesia was not, in Dr. Edsall's opinion, a fair test of the effects of alkali in these cases; for the acidity of the gastrointestinal tract was not the important matter, if the theory of the presence of acid intoxication was correct. The element of importance was the excessive amount of acid in the tissues, and the only way to combat this was to use a soluble and readily diffusible alkali. Sodium bicarbonate was readily absorbed.

It was important, also, to use the alkali as early as possible; and particularly important to use it upon the first appearance of prodromes, should they appear in the case. After the stomach had once become violently upset, it was doubtful whether neutralizing the acids present in the system would satisfactorily control the symptoms. The matter of chief importance was, if possible, to prevent the onset of the attacks; although the alkali would apparently often abort the attacks, if given soon after the violent symptoms had appeared.

It was probable, however, that recurrent vomiting was not always due to the same cause, and that in a certain proportion of instances acid intoxication might be found absent; in such cases, flooding the tissues with alkali would be ineffective. It was, however, a comparatively simple matter to determine how frequently acid intoxication was present, and how often alkalies were successful in preventing or in aborting attacks.

DR. I. VALENTINE LEVI reported

A CASE OF CYSTITIS DUE TO THE COLON BACILLUS

that occurred in a boy of fourteen. The infection took place through the boy having used a syringe that had previously been used for administering enemata, in order to inject into his bladder. Two days later, the symptoms of acute cystitis appeared. A bacteriological examination of the urine showed a pure culture of colon bacteria. When put under treatment, the patient rapidly recovered.

Two other cases of cystitis in adults, in which pure cultures of the colon bacterium had been found, were reported; and the characteristics of this organism and of the infections produced by it were briefly discussed. (See page 348.)

THE NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, March 19, 1903.

ANDREW H. SMITH, M.D., PRESIDENT.

THE SECTION ON PEDIATRICS

held a symposium before the Academy on

TYPHOID FEVER IN INFANTS AND CHILDREN.

DR. JOHN LOVETT MORSE, of Boston, presented a paper with the title

THE OCCURRENCE OF FETAL, CONGENITAL AND INFANTILE TYPHOID.

He said that conclusions based on a positive Widal reaction and the finding of the typhoid bacilli had done something in recent years to bring order out of chaos in regard to this much mooted subject. Reference was made to 16 cases which had been shown by autopsy and by cultures to be genuine typhoid. Of these, 10 were born dead and 6 died in from five minutes to three weeks after birth. That the infection could pass from the mother to the fetus could no longer be doubted, for several observers had demonstrated experimentally that it was possible for bacilli to pass through the placenta. In 12 of the cases the organs were carefully examined. In 4 the spleen was more or less enlarged; in 1 there were healed ulcers in the intestine and the mesenteric nodes were enlarged; in 1 the liver was decidedly enlarged and there were hemorrhages beneath its capsule. It was worthy of note that only in the case of the infant that lived for three weeks after birth were there any distinct lesions of the intestine. There was abundant proof that infection of the fetus did not always occur when the mother was ill with typhoid. Statistics seemed to show that typhoid was uncommon in infants under the age of two years, and that when infection did occur it was usually when there were other cases in the same house, or as a part of an extensive epidemic. This suggested the probability that these young infants were not specially susceptible to typhoid infection and only became infected when repeatedly exposed. He had found the records of 32 undoubted cases of typhoid in infants under two years of age. A positive Widal reaction was obtained in 23, a bacteriological examination in 5, and both methods were made

use of in 4 of the cases. Of the 32 cases, 16 died, thus giving a mortality of 50 per cent. The eruption of typhoid was observed in 16 of the cases, abdominal distention in 11, diarrhea in 19 and constipation in 5 cases.

DR. A. D. BLACKADER, of Montreal, read a paper upon

THE SYMPTOMS AND ETIOLOGY OF TYPHOID FEVER IN CHILDREN
WITH ESPECIAL REFERENCE TO THE WIDAL REACTION.

Notwithstanding some recent statements to the contrary there is at present no proof to show that Eberth's bacillus enters the body by any other tract than the intestinal, in connection with which, in the great majority of cases, the infecting lesion is found. The bacillus reaches the intestines most frequently in drinking water. Milk also is a not infrequent source of infection, as it forms an admirable preservative and nutrient medium for the organisms. It is to be noted also that the development of these bacteria in milk does not appreciably change either its appearance or its taste, nor does it lead to coagulation.

The contagium may also be directly conveyed from the hands or the clothing of either infected patients or their attendants to the hands or the feeding utensils of others with whom they may be brought into contact. To this method of infection children appear to be specially exposed.

Although it is universally conceded that youth predisposes to infection, it is to be noted that early childhood is less susceptible than later childhood, and later childhood than early adult life. The statistics of the Montreal General Hospital agree in this respect with statistics quoted by all recognized authorities. Out of 398 cases admitted to the Montreal General Hospital since 1900, 4 were below five years old; 19 were between five and ten; 32 were between eleven and fifteen; 89 between sixteen and twenty; and 92 between twenty-one and twenty-five years of age. Only 25 cases out of the 398 were over forty years of age. It is true that, to a certain extent, these figures do not give a correct conception of the comparative frequency of the disease at various ages, for young children are treated at home much more frequently than are adults. Of the 100 cases of enteric fever in children reported by Dr. Blackader in 1900, many of which occurred in private practice, 4 were under two years; 13 were over two and under six; 40 were over six and under eleven; 42 were over eleven and under fifteen years.

Comparing the onset, course and termination of a simple infection by the Eberth bacillus in childhood with the same in adult life, we are impressed on the whole by its benignity, low mortality, and often short duration. While in a certain percentage of cases alarming features and secondary infections do develop, yet, in the great majority, the infection runs a benign course.

The onset of typhoid in early life is not infrequently sudden and may even simulate a pneumonia. In the greater number of cases, however, the initial symptoms are even more indefinite than they are in the adult. The temperature range not infrequently lacks many of the typical characteristics of the disease in adult life and the stage of continued fever is brief; remissions earlier become distinctly marked, and by the tenth or twelfth day its intermittent character is established. Rarely, however, in children, according to Curschmann, does this intermittence assume the regularity of true malarial fever. In the large majority of cases the pyrexia has run its course by the end of the third week, but the first few weeks of convalescence are not infrequently characterized by much instability of temperature. In a few instances the fever may terminate abruptly at the end of the remittent stage by a sudden drop, resembling a distinct crisis. Abortive cases, in which the pyrexia terminates after the eighth or tenth days are occasionally met with.

The mortality of typhoid fever in childhood is low. In his 100 cases reported in 1900, there was only one death, and in 50 consecutive cases in children under fifteen years of age, taken into the Montreal General Hospital since that date, there were only three deaths. Death when it did occur, was usually the result of some intercurrent infection. Referring to the special symptoms occurring during the course of the attack, gurgling in the ileocecal region is, in his opinion, of little importance, but some tenderness in this region may manifest itself during the second week, and should be carefully differentiated from that of appendicitis. The typical typhoid eruption will be found in the majority of cases if looked for between the tenth and the fourteenth days of the illness; exceptionally as early as the fourth or fifth days. Large or ecchymotic spots on the skin must be regarded as of unfavorable import. A certain amount of bronchitis in children is almost invariably present and is of some diagnostic significance, but often gives no evidence of its presence by cough.

The circulation is not affected to the same extent as in the

adult. In early childhood the relative slowness of the pulse so frequently noted in older children and in young adults, is generally absent, and a quick pulse is the rule. Only in long and severe cases, however, do symptoms of actual cardiac asthenia develop. Transitory intermission is not infrequent both during the febrile stage and during convalescence, especially during the subnormal stage. The dicrotic pulse is practically never seen in children under ten years.

The symptoms of intestinal irritation are seldom prominent in children. While a slight diarrhea is present in the majority of the cases at the outset, it quickly subsides under careful dietary, and is not infrequently replaced by constipation requiring the employment of enemata. Tympanites is a rare complication, but some rounding of the abdominal walls is generally to be noted. A nephritis, as indicated by albuminuria with casts, is an occasional complication and it is not to be forgotten that the typhoid bacillus may develop in the urine, and in cases of retention set up a cystitis. The nervous system in children is seldom seriously affected by the toxemia. Headache and slight delirium dependent upon the pyrexia are not infrequent. A pseudomeningitis is sometimes observed quite early, but true meningitis is decidedly rare; the rounded instead of retracted abdomen, the enlarged spleen, and the rose spots should serve to make the diagnosis clear in the course of a few days. Recrudescence of the pyrexia in children is liable to occur from slight causes; not infrequently it is due to complications, such as an otitis or a bronchopneumonia. True relapses are, in his experience, less frequently met with in children than in adults. Well defined cases of typhoid fever in childhood can generally be recognized clinically by careful observation after the lapse of some days, but in all cases it is desirable to obtain such diagnostic aid as may be possible from the use of both Ehrlich's and Widal's reactions. While recognizing the limitations of the former, the fact that it is often positive considerably earlier than the Widal test, gives it a distinct value. In suspicious cases an examination for the Widal reaction should be made at least as often as every second day. Montreal physicians are accustomed to make use of a dilution of one in forty and a time limit of one hour, and to require that there be definite clumping of the bacilli, in order to constitute a positive reaction. Thus applied in Dr. Blackader's last 50 cases:—19 gave a reaction by the tenth day; 23 between the tenth and the twentieth days; 4 be-

tween the twentieth and the thirtieth days; I did not give a reaction until the forty-sixth day.

DR. J. P. CROZER GRIFFITH, of Philadelphia, was the author of a paper on

THE OCCURRENCE OF TYPHOID FEVER IN INFANCY AND CHILDHOOD.

He referred to the instances of fetal typhoid fever found in medical literature, and to what might be called congenital typhoid in children born alive with the disease. He called attention to the fact that the belief seemed to be gaining ground that typhoid fever was not so rare in infancy and childhood as had been formerly supposed. He had, in collaboration with Dr. Ostheimer, reported 18 cases in infants under two and a half years of age, and in the last year had been able to add 4 more personal cases to the list. He referred also to the statistics which they had published of cases of the disease collected from medical literature.

As regards the symptomatology, the most characteristic features in early life were the much less typical onset and course, and the tendency of the nervous symptoms to overbalance the intestinal ones. This was particularly true of early childhood and infancy. In later childhood the symptoms more nearly approached those of adult life.

The onset was frequently slow and insidious, so that the meeting with "walking" cases was of very frequent occurrence. Vomiting was a common initial symptom; epistaxis less frequent than later; diarrhea common in the first year, less common in early childhood, and of varying frequency in later childhood; abdominal pain was not infrequent, but was seldom severe. The spleen was always enlarged, though not always discoverable; rose spots were generally present. Desquamation occurred frequently, but was not characteristic. Grave nervous symptoms, such as coma, subsultus, etc., were uncommon. A degree of apathy was very characteristic, and slight delirium was frequently seen. Headache was a common initial symptom. A pseudomeningitis was perhaps more frequently seen in childhood than later in life, and was particularly misleading at the beginning of the disease. The average duration was from two to three weeks. The temperature generally rose rapidly and then fell so rapidly toward the close of the illness as to suggest a crisis. In infancy the temperature was liable to be very irregular. The slight tendency to intestinal ulceration probably explained the short course of the

disease. The mesenteric nodes were probably nearly always enlarged. The solitary and agminate follicles were hyperplastic, but seldom showed more than a superficial ulceration except in later childhood, when exceptionally extensive ulceration may occur.

The diagnosis was often difficult. Meningitis, enterocolitis and influenza had to be excluded. The latter was especially difficult to distinguish. The Widal reaction, if present, settled the diagnosis, but its absence, unless repeatedly sought for, left the question still open. Among the complications and sequels were mentioned particularly hemorrhage and perforation, as being generally unusual in childhood. He had, however, seen hemorrhage in a child of five months, and perforation in 4 cases. Relapse occurred with about the same frequency as in adults. The prognosis was on the whole good. In 432 cases occurring in the Children's Hospital death took place in 5.32 per cent. Other statistics, however, differ. The disease would probably be more serious in infancy than in early childhood. Of the 18 referred to, 5 died, a mortality of 27.7 per cent.

With regard to treatment, he said that the Brandt bath was not suitable for young children, and even a plunge bath of from 85° to 90° was often not well borne. Generally it was better to use sponging first, and if this was not sufficient, to try the tepid or the graduated bath.

DR. L. EMMETT HOLT opened the general discussion. He said that it was well known that the continued fevers caused pediatricians the greatest trouble in diagnosis, and while perhaps a very small proportion of these were cases of typhoid, it was unwarrantable to assume that they were typhoid merely because the ordinary focal inflammations could be excluded. Certainly if repeated examinations failed to give a positive Widal reaction there was very little probability that the disease was typhoid fever. That Dr. Griffith's experience with typhoid in early life was altogether exceptional was shown by the fact that in the Babies' Hospital, where it was the rule to make cultures and examine for the Widal reaction in all cases of continued fever they had been able to discover only 3 cases of typhoid in fourteen years, the patients being over two years old. Clinically typhoid in young children appeared to be more a nervous than an intestinal disease, it was therefore well to think of typhoid whenever meningitis was suspected. In two or three instances he had known the typhoid eruption to be so profuse as to be easily mistaken for measles.

DR. W. P. NORTHRUP said that he had seen only 6 cases of typhoid in children of two years or under. These were intimately associated with other cases in the same family and thus exposed repeatedly and continuously to the infecting agent. The ages of these patients were respectively nine, thirteen, sixteen, twenty-two and twenty-four months. Not a single undoubted case of the disease had been observed in twenty-eight years at the New York Foundling Hospital by such excellent clinicians as the late Dr. J. Lewis Smith and the late Dr. Joseph O'Dwyer. Furthermore, from the literature of the whole world Dr. Griffith had succeeded in collecting only a paltry 249 cases under two years, including "congenital" (23) "extremely doubtful," and "doubtful yet probable cases." These facts, he thought, went far to prove his contention, that typhoid is a rare disease in infants under two years of age.

DR. H. KOPLIK remarked that it was impossible to ascertain the relative frequency of the disease at different periods of life, because medical authorities were not agreed as to what evidence was essential to a positive diagnosis of typhoid fever.

The Widal reaction in some cases is absent even after several tests. Koch has recently shown that the examination of the feces is necessary to a diagnosis when the Widal fails. When both the Widal and the examination of the feces for the Eberth bacillus could be tried in every case, his belief was that typhoid would be found to be much more prevalent in infants of two years and under than was generally supposed, and certain it was that clinically in very young infants it often totally escaped detection, and was atypical in very large numbers of cases. The Widal reaction was peculiarly valuable in those cases simulating meningitis and pneumonia.

A Case of Hemophilia Illustrating the Value of Calcium Chlorid as a Local Styptic.—T. W. Parry's patient (*The Lancet*, February 21, 1903) was a boy of seven and a half years, who, when first seen, was bleeding from a cleft between the left lower first permanent molar and the temporary molar immediately in front of it. No other source of blood could be discovered, even under anesthesia. All sorts of styptics were used on cotton pledgets packed between the teeth, but without avail. Finally the hemorrhage was checked by plugging the cleft with cotton dipped in a solution of calcium chlorid thirty grains to the ounce.—*Medical Record*.

Current Literature.

PATHOLOGY.

Cima, Francesco: Contributions to the Study of the Histological Changes in the Spleen of Infectious Splenic Anemia of Children. (*Pediatria*, October, 1903.)

The author reports 2 cases of infectious splenic anemia in children in which he observed the minute changes in the spleen. In the first case hypertrophy and hyperplasia of the connective tissue and sclerosis of the follicles predominated. In the second case there was also an increase in the connective tissue of the organ but the predominating lesion was a swelling of the spleen by infiltration between the lymphatic elements of the Malpighian follicles. A certain degree of difference was observed in the 2 cases as regards the histological changes. In the first case the hypertrophy of the connective tissue, including the capsule, the trabeculæ, and the fibrous network supporting the splenic pulp predominated, while in the second the connective tissue hypertrophy was not so marked. The Malpighian bodies were not distinguishable everywhere in the first specimen, because they were distorted and hidden by the overgrown connective tissue. On the other hand the second specimen showed the Malpighian bodies very distinctly. The lesions of the first case resembled closely those described for splenic anemia in the adult by Banti, and in infants by Mya and Trambusti. The lesions of the second spleen were in correspondence with those described by Fede. The clinical history of the cases showed that in the first the spleen had been much larger and harder and that the disease had lasted much longer than in the second case. It is possible that the same etiologic factor produces different lesions in different cases, but it is probable also that the difference in the lesions observed in these 2 cases is due to the fact that the viscera were examined in different stages of the same disease.

Petrone, Giuseppe Antonio: On a Serum that Precipitates Antidiphtheritic Serum. (*Pediatria*, October, 1902.)

In this preliminary note the author describes the researches which he is at present pursuing in order to determine the follow-

ing points:—(1) Is it possible by injecting antidiphtheritic serum, such as is now made in different laboratories, into man or animals, to produce the specific precipitine of the blood of the animals in question? (2) Is it possible to produce in the fluids of these animals, substances which are antagonistic to the antitoxin contained in the antidiphtheria or antitetanus serums, by injecting these serums into the blood of man or animals? It is of great practical importance to know whether the repeated injection of certain doses of an antitoxin produces in the body substances which are antagonistic to this antitoxin and therefore diminish its therapeutic value. If, according to Ehrlich and others, it be possible to produce in the animal cells substances that are antagonistic to the various species of proteid bodies found normally in the protoplasm and in the body fluids, and to certain products of cellular life, such as lab-ferment, why is it not possible to produce antagonists to the antitoxins, which are also products of cellular life?

The author limited his work to antidiphtheritic serum, using that made in the Pasteur Institute. A rabbit weighing 150 gm. received an injection of 5 cc. of the antitoxin (1,000 units) on May 17, 1902. After a month a few cc. of the blood of this animal were taken and the serum from this blood added to some diphtheria antitoxin. The result was negative, as no precipitate resulted. During the next month the animal received four injections at intervals of about a week each, of from 6 to 8½ cc. of serum. The blood of the animal was again tested on the thirteenth day after the last injection and it was found that the serum in question had a slight precipitating action upon Pasteur Institute diphtheria antitoxin. Further experiments are needed to solve the questions put by the author, and the results thereof will be published shortly.

Durante, D.: On the Hemolytic Power of the Bacillus Coli Communis. Experimental Researches. (*Pediatrics*, October, 1902.)

Many germs have been studied of late with reference to their powers of destroying red blood cells (hemolysis), but the bacillus coli communis is not among those thus far considered. The purpose of this research was to determine the hemolytic powers of the bacillus coli, not only in order to contribute to the knowledge of the biology of this important germ, but also in order to establish, if possible, experimentally, the well-known clinical

fact that infection with the bacillus coli in children results in anemia and in alterations in the blood and the hematopoietic organs. The bacillus coli which served for the author's experiments was obtained from two cultures. The first of these was very virulent, and was obtained from the feces of an infant with a most pronounced intoxication from a gastroenteritis due to this germ, and the second, from the feces of an infant with a mild catarrhal enteritis, was mildly virulent. The animals experimented upon were frogs, guinea pigs, and rabbits, and the experiments were conducted both *in vivo* in these animals, and *in vitro* with blood obtained from rabbits and from some children in the clinic. The colon bacillus was shown in these experiments to possess a distinct hemolytic power, which was more marked on the part of the virulent culture than on the part of the weak culture. Therefore the degree of hemolysis of which a bacillus coli is capable is directly proportional to the virulence of the culture whence the germ is taken.

In the living animals the injection of bacillus coli cultures produced a certain amount of anemia. But this anemia was not proportionate in degree to the emaciation of the animals, for some of them showed marked changes in the blood and yet had not lost a great deal of weight. No hemolytic action was elicited on injecting a quantity of broth culture sufficient to kill in less than twenty-four hours, and therefore the bacillus coli has a slow hemolytic effect, and not a rapid one such as is observed in the streptococcus. The toxins secreted by the colon bacillus also have hemolytic powers. In the experiments *in vitro* it was also found that the more virulent the culture the more pronounced the hemolytic action.

Glinski, L. K.: A Contribution to the Pathological Anatomy of Acute Lymphemia. (*Virchow's Archiv.* Bd. 171, Hft. 1, p. 101.)

The report deals with the case of a child one year old. The blood examination showed 918,750 red cells, 180,416 white cells, and 21 per cent. of hemoglobin (Fleischl). The cause of death, which occurred very shortly after the first examination, was pneumonia and cardiac failure. The autopsy showed the usual leukemic changes in the lymph nodes, spleen, bone-marrow, liver, kidneys, and digestive tract; changes of especial interest were found in the eyes, the ribs, the serous membranes, especially the

epicardium, and the pia mater. In the eyes there was leukemic infiltration of the conjunctiva, choroid, eye muscles, and the tear ducts, such as Brudzewski has described in other cases.

On the ribs there were beads very much like the rachitic rosary, but more spindle-shaped and not presenting the rachitic irregularity of bone formation. The enlargement was found to be due to leukemic infiltration beneath the periosteum. The changes in the serous membranes were of the same nature, but they were of especial interest from being, in part, recognized only by microscopical examination.

The involvement of the pia mater is also of importance, because of its rarity. All previous observations relative to leukemic changes in the brain membranes have concerned the dura.

MEDICINE.

Guinon, M. L. : Acetonemic Vomiting. (*Gaz. des Mal. Inf.* January 1, 1903, p. 3.)

A little girl ten years old complained of headache, constipation and excessive fatigue. The next night she had attacks of copious mucous vomiting having a distinct odor of acetone. The following day the breath had an acetonemic odor, the abdomen was retracted and tender. The attacks persisted for three days when they suddenly ceased.

No bile was detected in the vomitus, and it has been stated that it is very exceptional to find any. Another peculiarity is that the vomitings do not seem to be dependent upon digestive troubles. No cause for the acetonemia was discovered in this case.

Brassart and Ingebraus : Fatal Double Paralysis of the Recurrent Nerves. (*Gaz. des Mal. Inf.* January 1, 1903, p. 1.)

This occurred in a child fifteen years old with a history of measles and coryza, probably syphilitic. The prominent symptoms were substernal and epigastric retraction, muffled voice, almost aphonia, weakness and delay of the left radial pulse, and paralysis of both vocal cords. The diagnosis was made of paralysis of the recurrent nerves due to a mediastinal tumor, probably tracheobronchial adenopathy. Death occurred in a fit of suffocation, in spite of tracheotomy. Autopsy showed hypertrophy of the mediastinal nodes, very pronounced in the left tracheobronchial group; marked left sided bronchial dilatation,

and considerable enlargement of the thymus, causing the compression of the recurrent nerves.

Only 12 cases of double recurrent nerve paralysis have been noted.

Méry, M. H.: Aortic Dilatation. (*Gaz. des Mal. Inf.* December 18, 1902, p. 405.)

This occurred in a boy twelve years old with a history of rheumatism and chorea. From the age of seven years an aortic insufficiency had been noted, which compensated well, and showed no Corrigan pulse. The aortic dilatation occupied the first right intercostal space, where a systolic blow was heard.

A systolic shock was felt at the apex. The dullness to the right of the sternum was increased 3 cm. The systolic blow indicated an aortis and not a narrowing of the aorta. Aortic dilatation in children has been noted in but 6 cases.

Nobécourt and Voisin: Typhoid Fever and Enteritis in Infants. (*Rev. Mens des Mal. de l'Enf.* January, 1903, p. 24.)

A child of eighteen months had an attack of typhoid fever accompanied throughout by diarrhea with frequent, green, mucous stools. The author believes that there was an enteritis in addition to the typhoid, and that it was the enteritis which caused death by making feeding of the child almost impossible. The Widal reaction was positive on the eighth day, and on four subsequent examinations until the thirty-first day of the disease. Death occurred in the sixth week. No autopsy was permitted.

Enteritis as a complication of typhoid fever in young children is important from the standpoint of alimentation, as milk aggravates the diarrhea.

Ausset, E.: Is Barlow's Disease a Special Form of Rachitis or of Infantile Scorbutus? (*L'Echo Médical du Nord.* January 4, 1903, p. 1.)

The following conclusions are drawn:

I. Children with Barlow's disease are imperfectly fed and in the great majority of cases are the subjects of gastroenteritis. All are rachitical with or without bone deformities, the latter depending upon the chronicity of the gastrointestinal trouble.

II. The coexistence of rachitis and Barlow's disease would point to a similar etiological factor.

III. Barlow's disease is a hemorrhagic variety of rachitis.

IV. Sterilized milk is not always the direct cause of the disease. Careless preparation and adulteration are equally responsible, but the disease is more readily produced by foods which are improperly sterilized.

V. The alkaline citrates play only a physical part in the coagulation of casein. There is no relation between their presence in milk and the action of citric acid as an antiscorbutic.

VI. If sterilized milk is less digestible than pasteurized or woman's milk, it is because the soluble ferments, present normally, have been destroyed in the heating.

Foggie, W. E.: A Case of Cerebral Diplegia after Whooping-cough. (*Scottish Medical and Surgical Journal.* January, 1903, p. 39.)

The child had whooping-cough at six months. After a paroxysm she had convulsions followed by unconsciousness which lasted two weeks. When she emerged from this state she was found to have a general muscular weakness and rigidity. These have persisted. The child has also been mentally backward. At two and one-half years she speaks only the simplest words. The writer considers the case a good example of Little's disease. There is no definite agreement as to the pathology of this condition. The circumstances in this case suggest a cerebral hemorrhage. The general result of recent pathological research has shown as the final lesion a degeneration of the cortical neurons, which, if in the motor area of the brain, leaves the lower neurons free and allows the development of the spastic condition as in this case; or, if in the frontal area, shows itself by mental weakness; or if in both, by a combination of motor and mental phenomena such as is seen in a marked degree in certain classes of imbeciles.

Theisen, C. F.: An Unusual Case of Nasal Syphilis in a Child. (*Journal of the American Medical Association.* February 28, 1903, p. 561.)

A boy, of seven years, was found to have both nostrils occluded by tumors, about the size of cherries, springing from the septum. There were two tumors in each nostril. The patient also had a suppurative dacryocystitis with a fistula on one side and a reflex asthma. Medical treatment with arsenic, etc., proved ineffective

and operation was consented to. Both nostrils were cleared out. He improved for a time but within two months the obstruction returned. A history of syphilis in the parents was then obtained, potassium iodid was given and in a short time both the nasal obstruction and the asthma disappeared. Histologic examination showed the tumors to be composed of small round cells and spindle cells. Neither tubercle tissue nor bacilli could be found.

Gardner, H. W.: A Case of Hypertrophic Stenosis of the Pylorus in an Infant; Recovery without Operation. (*The Lancet*. January 10, 1903, p. 100.)

An infant weighing eight and one-half pounds at birth gained three pounds in two months on maternal nursing. He then developed diarrhea which gave place to persistent vomiting one-half hour after feeding. The child was weaned and a variety of foods tried without success. The infant lost weight, the vomiting persisted, and constipation became marked. Visible peristalsis of the stomach was observed and on deep palpation a small rounded tumor was felt underneath the left rectus in the region of the pylorus. Operation was advised but declined. The experiments in diet continued. Whey, malt, barley water and maltine, meat juice, white of egg, cod-liver oil, cream, grape juice were all employed. The child gradually gained weight. An attack of bronchitis caused considerable loss, but after it, the vomiting disappeared, the child began to gain and ultimately made a good recovery.

Woods, R. F.: Gonorrheal Vulvovaginitis in Children. (*The American Journal of the Medical Sciences*. February, 1903, p. 311.)

Towels, bed-linen and bathing vessels may serve as carriers of the gonococcus, and an infant may be infected by its mother during parturition. The microscope is the only means of telling the infectious from the noninfectious variety of vulvovaginitis, and cultures are necessary in order to positively identify the gonococcus. The author's 5 cases occurred in children from three months to eight years of age. Two were proven to be gonorrheal by means of hydrocele-fluid-agar cultures, one was uncertain because a mixed culture was present, one was negative, and in one no cultures were made.

Ophthalmia is the most common complication; arthritis is quite common; heart lesions are sometimes found, and acute peritonitis is the most severe and dangerous complication of all. Treatment consists of hygiene, cleanliness, tonics, and douches of permanganate of potassium.

Weil and Cl  rc: Chronic Splenomegalie with Anemia and Myelemia (Infantile Form). (*Rev. Mens. des Mal. de l'Enf.* January, 1903, p. 1.)

Two cases were observed in infants aged respectively fourteen months and nine months. A study of the blood shows that the affection called splenic anemia may be divided into several anatomical groups. The most important one appears to be chronic splenomegaly, with anemia and myelemia, or splenic pseudo-leukemic anemia. Another form is the chronic splenomegaly with anemia and lymphocythemia. They do not belong exclusively to early life, the same types occurring in adults; but certain clinical and etiological factors (the coexistence of syphilis or rachitis) necessitate the separation of infantile forms in the study of splenomegaly. The pathology of the affection is characterized by hyperplasia of the hematopoietic organs, chiefly the spleen and marrow.

Findlay, J. W.: A Case of Diphtheria Complicated by an Acute Endocarditis of the Mitral Valve. (*The Glasgow Medical Journal.* January, 1903, p. 27.)

A girl of six years who had had repeated illnesses, but had never suffered from rheumatism or scarlet fever, developed an attack of diphtheria which ran a moderate course, was treated by antitoxin, and ended in recovery, the membrane having disappeared by the ninth day. On the following day the apex impulse of the heart was found to be diffuse in the fourth and fifth spaces, the cardiac dullness was increased, there was a well-marked V. S. murmur at the apex, systolic in time, and transmitted in all directions, especially to the left and backward. The pulse was 120. Some improvement followed, but five months later the heart was more enlarged, the murmur was still present, and the second pulmonic sound was accentuated. There was no enlargement of the liver or spleen and no edema, but the child did show some

dyspnea on exertion. An extensive historical review of the relation of diphtheria to endocarditis is given.

Olinto : General Tuberculosis in a Child Four Months Old, without Fever. (*Rev. Mens. des Mal. de l'Enf.* January, 1903, p. 33.)

The infant had a tuberculous mother and was small and badly nourished at birth. She developed cough and diarrhea, but never had any fever. At the autopsy tubercles were found in the pleura, lungs, lymph nodes, thymus, pericardium, spleen, liver, pancreas, intestines, broad ligament on the right side, suprarenals, kidneys, cerebrum and cerebellum.

The case is remarkable for the marked generalization and advanced stage of the lesions in so young a child, no organ being left intact. It is also noteworthy that there were no febrile reaction and no typical symptoms, in spite of the rapid evolution of the lesions.

Lomax, H. E. : Infantile Diabetes Mellitus. (*Albany Medical Annals.* February, 1903, p. 76.)

The literature of the subject is reviewed and an extensive bibliography accompanies the article. Two cases are reported. One, a boy of three years, came under treatment for nocturnal enuresis. The symptoms are said to have developed after a fall from a high chair, the boy's head striking the wall. Treatment effected some improvement but the child died in coma within a year. The second case was a girl, two years of age. She first came under treatment for convulsions. There was no history of thirst or polyuria in this case. Under treatment the child improved and the sugar disappeared from the urine. She passed from observation in a few months.

Sloan, A. B. : Note on Relapses in Scarlet Fever. (*The Lancet.* February 14, 1903, p. 436.)

According to the report of the Metropolitan Asylum's Board for 1901 relapses occurred in 1.09 per cent. of 14,143 cases of scarlet fever. Sloan thinks that few men of hospital experience will deny the occurrence of such cases. He reports 2 cases, in which children, while desquamating from one attack of scarlet fever developed symptoms, including typical eruption, of a second attack. These cases are regarded as re-infections rather than autoinfections and the use of the term relapse is considered objectionable.

SURGERY.

Chiene, G. : Notes on a Case of Acute Intussusception in an Infant Aged Four and a Half Months ; Laparotomy ; Recovery. (*The Scottish Medical and Surgical Journal.* January, 1903, p. 42.)

The child's illness began in the morning. It was seen and the diagnosis made before noon. The operation, which occupied but eighteen minutes, was over in four and one-quarter hours from the beginning of the attack! The child recovered.

Young, J. K. : The Correction of Bowlegs. (*International Medical Magazine.* December, 1902, p. 718.)

The writer considers the treatment of bowlegs, due to rickets, particularly those that occur during infantile or adolescent life. Proper treatment of rachitis during its early stages will prevent the bony deformities, such as bowlegs. Spontaneous recovery in cases of bowlegs is possible, when the general condition of the patient undergoes marked improvement, resulting in lengthening the bones and strengthening the muscles attached to them; but in the writer's experience this is very rare. If the patient is under four years of age, so that the bones are still soft, the deformity of bowlegs may be relieved by the wearing of apparatus and treatment with manipulation and massage.

In cases in which such treatment fails or in patients over four years of age operation may be necessary. This may be either osteotomy or osteoclasis. The writer prefers the former. In very young children the deformity may be corrected with the hands alone, without the use of instruments, a green-stick fracture being produced.

After the deformity has been corrected by surgical means, it is best to supply the child with apparatus for a year, so that the bones become firmly united and the deformity does not recur.

Rigby, H. M. : Notes on the Results of the Treatment of an Unusual Series of Cases of Acute Intussusception. (*The Lancet.* February 7, 1903.)

Seven cases of acute intussusception were admitted into the London Hospital in the nine days from December 26, 1902, to January 3, 1903. Six of the 7 cases were operated upon with five recoveries. Four of the five patients who recovered were aged

respectively, five months, six months, six months, and eight months. Injection and inflation of these cases are considered undesirable for two reasons; first, because rupture of the gut may follow; secondly, because the intussusception may be reduced to the last inch or two and left there. This Rigby regards as the explanation of the return of symptoms in cases supposed to have been reduced by these methods.

Rapidity is considered the keynote in the operation itself. The time of the operations reported did not exceed fifteen minutes in each case. The fatal case was one of enteric intussusception, in which the lower portion of the gut was telescoped into the upper, the intussusception commenced only five feet from the duodenum. A resection was done. The occurrence of so many cases in the week following Christmas is regarded as suggestive.

Reid, W. B.: Strangulated Hernia in Children Under One Year. (*American Journal of Obstetrics and Gynecology.* February, 1903, p. 194.)

The writer reports a case of strangulated hernia in a child twenty-seven days old, the youngest patient operated upon by an American surgeon since the introduction of asepsis. Attempts at reduction both without and with anesthesia failed. Primary union was obtained after operation and the child recovered. A *resumé* of operations for this condition in children under one year of age is given.

Kennedy, R.: Suture of the Brachial Plexus in Birth Paralysis of the Upper Extremity. (*The British Medical Journal.* February 7, 1903, p. 298.)

Birth paralysis is caused by injury to the brachial plexus, such that the nerve fibres of the fifth and sixth cervical nerves have their conductivity destroyed. This usually means that these nerves are either partially or completely ruptured. The clinical picture of the paralysis is well-known. Kennedy holds that these injuries should be treated just as like conditions of the peripheral nerves. A certain time after birth should be allowed, to see if there are evidences of recovery without operation. If, however, after two months no responses can be got in the muscles with the faradic current, operation should be done. The incision is made from the junction of the middle and lower thirds of the sternomastoid outwards and downwards to the junction of the outer and middle

thirds of the clavicle. The seat of injury in the nerves is found and excised. The cicatricial tissue is removed at either end till the fasciculi of the nerves appear. The ends are then sutured with chromicized catgut.

Kennedy has operated upon 3 cases, but in only 1 has sufficient time elapsed to warrant decision as to the value of the operation. This one case has been completely successful.

Goldsmith, P. G. : Report of a Case of Fatal Secondary Hemorrhage Four Days Following the Removal of Adenoids. (*Canadian Journal of Medicine and Surgery.* March, 1903, p. 170.)

A healthy boy of three years, with a history of gradually increasing deafness, was operated upon, both tonsils being removed and large adenoid masses taken from the nasopharynx with forceps. The child returned home apparently well. The following day the child had repeated hemorrhages, so severe as to end in death. Though assistance was summoned, no effort to find the bleeding point was made. The mother observed that the eschars on the tonsils were intact and that the bleeding came from behind the palate.

Stiles, H. J. : Three Abdominal Cases in Children. (*The Scottish Medical and Surgical Journal.* February, 1903, p. 131.)

The writer reports a large hydatid cyst of the liver in a boy of eight years, a congenital urinary umbilical fistula (fistula of the urachus) in a girl of five, and a case of tuberculous disease of the iliocecal region in a three-year-old girl. In the last case symptoms of obstruction developed, the abdomen was opened, anastomosis between the lower end of the ileum and the ascending colon effected, and the child made a good recovery.

Peters, G. A. : A Case of Purulent Pericarditis Complicated by Empyema: Operation and Recovery. (*Edinburgh Medical Journal.* March, 1903, p. 209.)

A boy of seven years, after a month's illness, developed signs of an effusion in the pericardium. Aspiration showed the fluid to be purulent. An opening in the fourth left interspace three-quarters of an inch to the left of the sternum gave vent to ten ounces of fluid and relief to the urgency of the symptoms. Drainage was imperfect and the child's condition grew worse. Two days later attempts were made to drain, first in the fifth intercostal space

one-half inch to the right of the sternum, as recommended by Rotch, then in the fifth interspace on the left, following Paget's suggestion. Both attempts failed. The pericardium was then freely opened at the site of the original incision and twenty-nine ounces of fluid withdrawn. During the following day ten ounces more escaped by the drainage tube. The child, almost dead at the time of operation, improved. Two weeks later signs of effusion in the left thorax were found and twenty-four ounces of fluid evacuated by exploratory puncture at the angle of the scapula. The child recovered completely.

Keown, J. A. : Symptoms Simulating Appendicitis Caused by an Intraabdominal Band. (*Boston Medical and Surgical Journal.* March 5, 1903, p. 263.)

A boy of eight years had for two years more or less distress in the neighborhood of the umbilicus. At times there were fever, tenderness at McBurney's point, and vomiting. After a particularly severe attack of this kind the boy was operated upon. The appendix was found normal. On further examination a band was found running from a loop of small intestine upward to the umbilicus. This was ligated and removed. The patient made an uneventful recovery.

Whitacre, H. J. : Persistent Thyrolingual Duct ; Complete Branchial Fistula. (*Annals of Surgery.* January, 1903, p. 56.)

Case I. Complete branchial fistula. The patient was a girl five years of age. The outer opening of the fistula was on the right side of the neck, 2 cm. above and to the right of the sternoclavicular articulation; the inner orifice was found in the lower border of the right tonsil. The fistula had existed from birth and there had been a more or less constant discharge of mucopurulent secretion. The sinus was dissected out and the child made a good recovery.

Case II. Fistula from a persistent thyrolingual duct. This patient was a boy, eighteen years old. A discharging fistula had existed for two and one-half years. There was a minute fistulous opening over the middle of the left thyroid cartilage. A probe could be passed only one-fourth of an inch upward in the direction of the body of the hyoid bone. This tract was excised, but a sinus persisted. A second operation disclosed a tract leading upward from the original one toward the styloid process; this was re-

moved. A sinus again opened and a third operation revealed another tract following the line of the thyrolingual duct to the foramen cecum. This was dissected out, but a sinus still persisted. A fourth operation which included the cutting away of the body of the hyoid bone discovered a small sac lying immediately behind the hyoid; removal of this resulted in a final cure.

HYGIENE AND THERAPEUTICS.

Monti: A Contribution to the Study of Eruptions Due to the Use of Antitoxic Serums. (*Med. de los Niños.* November, 1902.)

The author denies the validity of the theories that the eruptive fevers are due to the presence of the streptococcus, or to the small amount of phenol which is added to the serum in order to keep it stable. Oertel's theory, which attributes the exanthemata to the intoxication of both blood and tissues is more plausible. The author proved that such an intoxication can take place by the mere injection of the serum of an animal into another animal of a different species. The amount of antitoxic serum injected influences the severity of the eruption, and, therefore, the greater the quantity of serum injected, the more frequent the occurrence of eruptions. Antitoxin rashes are very rare at present, and when they occur they are not marked, probably because a more concentrated serum is now used against most diseases in which serum therapy is employed, and in this way the eruptions due to the injections of too great quantities of antitoxin are avoided. The author has observed antitoxin rashes in only 3 per cent. of his own cases of diphtheria. In regard to the eruptions of scarlet fever serum, the author states that he has obtained no untoward effects by the injection of 180 cc. of this serum in scarlet fever patients; but it is his opinion that the skin in this disease does not offer a favorable soil for the action of the toxic properties of the serum of the horse, and that if these properties are brought into play they become neutralized by the streptococcus itself.

A small amount of serum may also produce an eruption, and in these cases it is the quality of the serum that is at fault. In order to avoid the occurrence of eruptions in the use of antitoxic serums, it is well to observe the following rules:—(1) Only serum that is absolutely clear should be employed. (2) If it is

cloudy, it should be heated to 35° C. before using, and should not be used until all the cloudiness has disappeared. (3) Insist on observing the above mentioned rule in all cases where the serum had been kept unused for a long time, and whenever there are any flakes or any precipitates in it. (4) Try to use the most concentrated serum available in order to reduce the quantity to be injected, so that not more than 10 cc. be injected at one time. (5) If the serum is found to cause rashes, it should be exposed to repeated heating at a temperature varying from 35° to 50° C., and in this way the quantities necessary to immunize can be used, and no fear need be entertained that the efficiency of the serum has been diminished.

Winters, J. E. : Feeding in Early Infancy ; Home Modification of Milk. (*Medical Record.* March 7, 1903, p. 366.)

The first part of this article is an eloquent plea for maternal nursing. With proper regulation of diet before confinement, and during lying-in period, the writer says, every mother can nurse successfully during the weeks when it is of so much moment to herself and her child that lactation should be stimulated. If feeding is to be artificial, the new food should conform unerringly to nature's laws as expressed in mother's milk. To avoid disorder of digestion in a new-born child the upper one-half ounce of cream from a quart bottle should be used. Fat indigestion in infants is a myth. A long series of formulæ for various modifications is given. Proprietary foods, pasteurized and sterilized milk are all unsparingly condemned.

Langwill, H. G. : Stammering and Its Treatment by the General Practitioner. (*The Practitioner.* January, 1903, p. 24.)

The aim of the writer is the discussion, in a concise manner, of some of the points in connection with stammering and to give in detail the method of treatment advocated by Professor Wylie. The affection is much more frequent in boys than in girls; it very rarely develops after the second decade, yet the period of onset is not when speech is first acquired, but rather the later years of childhood. The cases described as hereditary are probably more accurately to be ascribed to what is perhaps the most important factor in the etiology of the condition, imitation. The affection is a purely functional disturbance; there are no pathological lesions.

The treatment is taken up on the basis that the essence of the trouble is a want of proper harmony or prompt cooperation between the functions of vocalization and articulation; the patient stammers, because he is giving more attention to articulation than to vocalization. The so-called physiological alphabet of Wylie is given and the system of drill by which the stammerer must be educated out of his habit is given in detail. The chief element in the success of the plan is the persistence of the patient. In the light of this fact the question of the age at which education should be begun is of secondary importance; it depends upon the aptitude of the individual and his willingness to make the necessary effort. Finally, in the prophylaxis of the condition, the necessity of separating the stammerer from the normal and his education in separate classes is emphasized.

Sutherland, J. : The Diffusibility of Scarlet Fever Virus. (*The Lancet.* January 10, 1903, p. 92.)

Scarlet fever is, according to the writer, intensely contagious. During an epidemic he observed but one instance of a susceptible child escaping the disease after exposure to a desquamating case. The diffusibility of the disease is, however, very low. These opinions are based on observations of 224 cases of scarlet fever occurring in 132 households of workingmen. In 48 cases in which the sick child was isolated in a room apart from the other children, although the mother acted the double part of nurse and housewife throughout the illness, no second case occurred. In 34 cases where other children were admitted to the patient's room second cases occurred, in each instance two days after exposure. Sutherland doubts whether a healthy nurse or attendant on a scarlet fever case can, under ordinary circumstances, convey the disease, even from one room to another.

Fischer, L. : Clinical Results with Antistreptococcus Serum in Scarlet Fever. (*Medical Record* March 7, 1903, p. 373.)

Two cases of scarlet fever, one malignant, the other moderately severe, were treated with injections of Aronson's antistreptococcus serum, 20 cc. in each case. In the milder case the temperature fell by lysis after the injection and a pseudomembrane which had been present in the throat rapidly disappeared. In the other the most marked effect seemed to be the rapid disappearance of necrotic areas. No ill effects were observed. The writer con-

siders it too early to formulate definite opinions as to the usefulness of the serum, but he considers that the specific action of antitoxin in diphtheria is far greater than that of the anti-streptococcus serum.

McKernon, J. F. : The Treatment of Chronic Suppuration of the Middle Ear. (*Medical News.* January 17, 1903, p. 115.)

There are two radically different methods of treatment. In one, the dry method, the canal is thoroughly dried out with sterile cotton and then a fine powder is insufflated, after which a small wick of gauze, iodoform, borated, or plain sterilized, is passed up to the perforation and the canal is loosely filled to the meatus.

In the other method frequent irrigation with antiseptic solutions is employed. When the discharge is very persistent, applications of pure carbolic acid, which is allowed to remain in contact with the diseased parts about thirty seconds and is then syringed away with pure alcohol, have been found very beneficial. The development of any of the complications of the affection calls for appropriate treatment.

Phillips, W. C. : The Treatment of Acute Suppuration of the Middle Ear. (*Medical News.* January 17, 1903, p. 108.)

The chief points are summed up, as follows:—

(1) In acute middle-ear suppuration early and free drainage is of the utmost importance; (2) patients should remain in bed until acute symptoms have passed; (3) free purgation (preferably by means of calomel) should be resorted to; (4) microscopical examinations of pus should be made; (5) local treatment should consist of cleanliness and free drainage; (6) proper internal medication should not be ignored; (7) prolonged attempts to abort suppuration of the mastoid cells are to be condemned; (8) early operative interference in mastoid suppuration prevents the more serious complications and gives far better hearing results; (9) uncomplicated cases of acute suppuration of the middle-ear, when properly treated, always recover in from two days to three weeks; (10) the responsibility for preventive treatment must be largely assumed by the family practitioner. He should fully appreciate the importance of preventive treatment when caring for grippé, the exanthemata, or other infectious intranasal conditions, and also the early and complete removal of diseased adenoid tissue.

American Pediatric Society.

To Meet in Washington, May 12, 13, 14, 1903.

Preliminary Program.

1. President's Address, J. P. CROZER GRIFFITH, M.D., Philadelphia.
2. "Synopsis on Some of the Renal Lesions in Infancy." By
DRS. C. F. MARTIN and F. M. FRY, Montreal.
3. "A Report of Eight Cases of Pneumonia in Infants Treated
with Antipneumococcic Serum." By JOHN LOVETT MORSE,
M.D., Boston.
4. "Gastroenteric Infections of Newborn Children." By IRVING
M. SNOW, M.D., Buffalo.
5. (a) "A Case of Chondrodystrophy Fetalis in a Child Four-
teen Months Old."
(b) "A Case of Congenital Hypertrophic Stenosis of the
Pylorus, with Specimen." By J. PARK WEST, M.D., Ohio.
6. (a) "The Determination of Fats and Total Solids and Their
Value."
(b) "A Note on Abdominal Auscultation in Infancy." By
HENRY L. K. SHAW, M.D., Albany.
7. (a) "Study of Two Cases of Intussusception." (Boy of Six
and Girl of Nine Years Old.)
(b) "Lumbar Puncture in Scrous Meningitis." By FRANCIS
HUBER, M.D., New York.
8. "The Value of the Incubation Period in the Diagnosis of the
Contagious Diseases of Childhood." By ALFRED HAND, JR.,
M.D., Philadelphia.
9. "A Case of Myxedema." By GEORGE N. ACKER, M.D.,
Washington.

10. "A Proposition to Immunize Young School Children Once or Twice During the School Year with Diphtheria Antitoxin and Thereby Lessen the Mortality from Primary Diphtheria, Scarlatina and Measles Complicated with Diphtheria." By AUGUSTUS CAILLÉ, M.D., New York.
11. "Report of a Case of Chronic Nephritis in a Four-Year-Old Boy Having Only One Kidney." By A. C. COTTON, M.D., Chicago.
12. (a) "Nasal Intubation (Soft Rubber) for Relief of Dyspnea Due to Acute Nasopharyngeal Swelling in Infants."
(b) "O'Dwyer Intubation—Instruments—Added Tubes for Infants Under One Year. Exhibition of Latest Complete Sets." By WM. P. NORTHRUP, M.D., New York.
13. "Discussion of the Etiology of the Summer Diarrheas." By DRS. SIMON FLEXNER (by invitation), HOLT, KOPLIK and others.
14. "Pulmonary Osteoarthropathy in a Child Three Years Old." By THOS. M. ROTCH, M.D., and HUNTER DUNN, M.D., Boston.
15. "The Etiology of Rachitis." By ROLAND G. FREEMAN, M.D., New York.
16. "Disturbances of Respiration in the Newborn." By W. REYNOLDS WILSON, M.D., Philadelphia.
17. "Concerning the Nature of Still's Type of Chronic Deforming Polyarthritis." By D. L. EDSALL, M.D., Philadelphia.
18. "Some Chemical Analyses of Milk Mixtures." By DRS. D. L. EDSALL and CHAS. A. FIFE, Philadelphia.
19. "The Infections of the Newborn." By DRS. S. MCC. HAMILI and M. R. NICHOLSON, Philadelphia.
20. "A Case of Edebohls' Operation." By T. M. ROTCH, M.D., and H. H. CUSHING, M.D., Boston.
J. P. CROZER GRIFFITH, M.D., *President*, Philadelphia, Pa.
SAMUEL S. ADAMS, M.D., *Secretary*, Washington, D. C.

ARCHIVES OF PEDIATRICS.

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Original Communications.

A REVIEW OF THE WORK OF THE AMERICAN PEDIATRIC SOCIETY.

PRESIDENTIAL ADDRESS.*

BY J. P. CROZER GRIFFITH, M.D.,
Philadelphia.

I wish to thank you, gentlemen, most heartily for the honor which you have conferred upon me in electing me your president; an honor which I feel is as great as it was unexpected.

Realizing that this is the Congress year and that our sessions are necessarily curtailed on this account, while our program is full, it has not seemed to me wisest to take up any medical topic for discussion, or to give you the result of any studies or experience of my own, but to confine myself to the brief expression of a few thoughts which this fifteenth anniversary of our organization as a national society might naturally call to the minds of all of us.

What have we done in the years we have been together? How have we used our talents for the benefit of our race? Probably the most apparent good has been accomplished by our individual care of the thousands of children with whom we have come in contact, and by the hours spent by the bedside in private practice and hospital wards or dispensaries. Often failing and often disappointed, we have yet, over and over, been able to see lives saved, apparently as a result of the treatment we have employed for, and the attention we have given to, our little patients. Physicians may, I think, experience nothing more gratifying and sat-

* Read at the meeting of the American Pediatric Society, Washington, D. C., May 12, 13, 14, 1903.

isfying than the consciousness of work well done and success attained in this way.

Yet, after all, this is not our chief work as a Society. Anything that tends to make the recognition and treatment of disease easier for our brother practitioners, by experimental and clinical studies which we may carry out and by the publication of our results, is capable of doing good far more widely reaching than our individual efforts at the bedside can accomplish. What, then, in the fifteen years of our existence have we done, as a body and as individuals, in our attempts to advance the knowledge of pediatrics? An examination of our records, including the papers presented at this meeting, shows a total of 395 articles read before the meetings of the Society by its members and published in the Transactions. To mention the title of any of these as being of particular value would be to make invidious distinctions. Some are reports of cases, some elaborate papers and some descriptions of new instruments. I may say that many of them have been of a nature making them of service to physicians everywhere, and have tended to give our Society a reputation international as well as national, and to make our Transactions of great value to any interested in the subject of diseases of children. Besides these individual efforts we have had some valuable collective investigations conducted by committees of our members, and contributed to by physicians throughout the country. I may mention here the two collective studies of diphtheria and that upon infantile scurvy, all of which have been widely quoted. Committees have also been appointed to simplify, as far as possible, the nomenclature of groups of diseases, such as those of the digestive tract, and the work of these, too, has been of great service. The remarks made by members in the course of discussion have not been included in the figures which I have given, although they have often been of value as great as, if not greater than, that of the articles themselves.

But the literary work of those who are, or who have been, members of the Society has been far more extensive than is represented by the list just given. It has not been possible to determine accurately just how much work of the kind has been done outside of that presented before the Society. As near as I could estimate from a search through medical journals I find that in the fifteen years of our existence, counting from June, 1888, to the present time, physicians who were, at the time of writing,

members of our Society have contributed in all 1,535 articles to medical journal literature in addition to those which have been published in the volumes of our Transactions. This by no means includes all the literary medical work that these men have done. I have enumerated only the contributions made while they were members, not the long list of those written before they joined the Society; or, in the case of a number of individuals, the work done after separation from our body. In addition to these journal articles those who are, or who have been, members with us have written or edited a number of valuable contributions to text book literature. I can recall at least thirty such works. Some of them have become standard in medicine. Some are almost classic. Notable among the list bearing upon pediatrics is that monument to the name of the editor, "Keating's Cyclopedia of the Diseases of Children." Our members, too, have contributed largely to composite text books, such as the "Twentieth Century Practice of Medicine," the "Reference Handbook of other Medical Sciences," and the like. The two journals in English devoted solely to the subject of pediatrics were established by men at the time members of the Society.

I am sure, gentlemen, that you will not misunderstand what has been said as though it were idle boasting. What the members of the Society have done in the past should only be a stimulus for renewed efforts in the future. Some of our best workers have fallen by the way. Of our members eight have been removed by death, the last of these the lovable Packard, cut off in the midst of his promising labors, of whom those of us who knew him best can say with Hamlet, "He was a man! Take him for all in all I shall not look upon his like again." Still others have finished their labors who had severed their active connection with the Society. I can recall at least three such. Of the present fifty-five members only twenty were in the original list fifteen years ago. Yet probably the majority of us have been members for ten years and more. Ten or fifteen years make a big difference in a man's life. To paraphrase the words of Solomon the Wise, there is a tendency for the sound of the literary grinding to be low and for the grasshopper of scientific investigation to be a burden. Some of us may feel a premature loss of our love of writing, or we may be wrapped up in our busy life in which the needs and opportunities for financial gain may smother our zest for painstaking and laborious scientific medical

studies. This must not be. Others besides ourselves are working and have worked. The most scientific labor, take it all in all, is not coming from this country, although the interest in and output of pediatric labor and literature has increased enormously everywhere in recent years. We must keep abreast of the times. As a nation we are by nature almost too practical. More elaborate chemical and bacteriological researches into the causes and treatment of disease in children should receive greater attention from us, not neglecting that for which we are well fitted as a nation—the careful study of the clinical side of disease, the exhaustive critical study of the work upon pediatric subjects of others throughout the world, and especially the collective investigations in which the Society as a body has already notably distinguished itself.

Press onward, then, my fellow members, in your efforts for the reputation of our Society, and for the advancement of this branch of medicine, acquaintance with which is so important to physicians, and, through them, to our entire race.

The So-called Hardening of Children.—Hecker (*Wien. Klin. Wochenschr.*, November 4, 1902) opposes the “hardening” of infants and children as it is usually conducted. To use cold water in the bathing of infants, to douche them after a warm bath with cold water, to make them sleep in cold rooms, or take them out in all kinds of weather, he considers deleterious to their general health. It does not diminish their tendency to cold, but rather increases it; it is also conducive to inducing other diseases of the respiratory tract (bronchitis, rhinitis, adenoids, etc.). He reports a number of cases where grave anuria, pneumonia, general nervousness, intestinal catarrhs, and various psychic disturbances have been traced to such a manner of hardening. He approves of a system of hardening, but it should be arranged for every individual case by the physician in attendance and no kind of hardening should ever be attempted with nurslings; they must always be kept warm. All hardening should be done gradually and almost imperceptibly in the manner of getting accustomed to a strong electric current. The idea of the hardening process should not be the lessening of parents’ work and worry but rather the strengthening of the child’s forces, so as to permit it to overcome inclement influences of any kind. He describes a number of methods capable of gradually producing this seasoned condition.—*American Medicine.*

THE CHANGES IN THE MANAGEMENT OF LARYNGEAL DIPHTHERIA TREATED BY INTUBATION.*

BY EDWIN ROSENTHAL, M.D.,
Philadelphia, Pa.

So many changes have taken place in the method of treating diphtheria, and especially that type known as diphtheria of the larynx or membranous croup, that a paper on this subject can never fail to interest, and may, in some measure, instruct. This class of cases, formerly considered a most fatal type, should always be considered as the direct cause of the bacteriological investigations resulting in a specific treatment, Behring's heil-serum; and in a specific operation, intubation. Medical science can give no better examples of the progressive strides of the zealous investigator than the discovery of the specific treatment of diphtheria, and the evolution of intubation tubes. Even as the discovery of the origin and cause of the disease resulted in the discovery of the remedy, so the study of the various types and manifestations of the malady resulted in various methods to meet them. While the treatment of the disease is most modern and belongs to the latest school of investigators, the study of the treatment of the symptom "stenosis" is ancient, and is linked with the history of medicine.

Many plans have been devised to combat this condition, but to briefly summarize, only two have remained—tracheotomy and intubation—as certain methods of treatment. The choice of either operation was determined by the experience of the operator until the advent of the serum treatment, when the operation of tracheotomy was replaced by the operation of intubation. Now we can safely assert that intubation of the larynx should be the only operation for the relief of this kind of stenosis.

In one of my earliest papers on this subject ("A Report of 100 Cases of Diphtheria of the Larynx Treated by Intubation," *Medical Bulletin*, September and October, 1894), I made the following observations regarding the choice between intubation and tracheotomy:—

"(1) To intubate always, when no professional assistance is

* Read before the Philadelphia County Medical Society.

at hand, no matter what the age of the patient. (2) Under the age of four years, always to intubate. (3) Between the ages of four years, and seven years, intubate primarily, and do tracheotomy secondarily. (4) When loosened membrane or the spread of the disease into the trachea is suspected, perform tracheotomy. (5) In the class of cases met among the poorer people, when skilled attendance can hardly be obtained, intubation should always be done."

While these indications still hold good and should not be disturbed, the specific character of our remedial agent is now to be considered, and enters largely into any indication for treatment. For this reason and with an intimate knowledge of the method of using the serum, as advised by Behring and the results obtained from the judicious and exact methods of administering it, I would modify these indications and summarize them thus:—

Intubate in every case, no matter what age, or what time of the disease, and tracheotomize only when the intubation tube is either too small and does not penetrate entirely the seat of the obstruction, or where the membranes, loosened by the use of the serum, are pushed ahead of the tube into the trachea.

The advantages and disadvantages which belong to intubation, and which were also factors in deciding the choice of operation, have remained the same as I have before described:—

The advantages are:—(1) The speed with which it can be performed. (2) Bloodlessness. (3) Lack of shock.

The disadvantages are:—(1) It clouds the prognosis. (2) The tendency to heart failure. (3) The dangers, pushing down false membrane; suffocation, by the finger in attempts to intubate. (4) The difficulty of nourishing the patient. (5) The difficulty in deciding when the tube is to be removed.

During the past eight years it has been my endeavor to investigate the "disadvantages" and to see by what manner or means we could combat these objections, and if possible utilize them or place them in the list where either one or all could be of some value. To this end I have from time to time presented various papers on this subject. The field of study is a large one and the opportunities rather limited by reason of the lack of material. Other operators, notably Johan Bokai, of Budapesth in Hungary, Austria; Waxham, of Denver, Simpson, Dillon Brown, Fischer and Francis Huber, of New York; Cheatham, Massei, Rosenberg, Trumpp and others equally as zealous, have undertaken the same

task, and the results of our labors have given us a better conception of this operation, and a clearer insight into the various accidents, complications and sequelæ that have been met with and that have been classed as "disadvantages." The results have been most surprising, and in none so gratifying as in the "after-treatment." If I quote again from my paper of ten years ago, I do so simply to show the change in my method of treatment, for in this change not one rule or method pursued at that distant time, has remained with me. If I were to treat a case now as I did formerly, I would consider my work superfluous; and if ten years ago I had treated a case as I do now, I would have considered my work insufficient, neglectful or of no value. I again quote from my former paper:—

"After intubation, as soon as practicable, I permit the child to drink water, milk, wine, or anything. I permit the child to hold the glass or cup, and do as it pleases. Generally the drink causes coughing, and mucus and membranes are frequently brought away."

At the present time this technique remains unaltered. Preliminary to intubation, however, I use a solution of peroxid of hydrogen by means of an atomizer. This is used freely at the time, and I even keep the tube in the same solution until I am ready to intubate. Immediately after intubation I apply the spray, endeavoring by its use to thoroughly clean the throat, larynx and parts within reach. Formerly I directed that this spray be used hourly, simply as a matter of routine, I now use it only when indicated. This I shall mention further on in this paper.

In former times, when medicines were used empirically for diphtheria, I would direct their use at such frequent intervals, as hourly perhaps, that the after-treatment became a constant treatment. There was a constant succession of applications of the atomizer, administrations of food or medicine, inhalations (for the inhalation of slaking lime was one of the specially pursued treatments) and the like. Let me quote again—"Lime inhalations I have found of questionable benefit. I have used them in cases that have recovered, and also in those that have died. A piece of unslaked lime is placed in a clean bucket with some cold water; the steam as it arises is brought to the child lying beneath an improvised canopy, made of an open umbrella and sheet. These inhalations are used judiciously, about once every hour, and are continued for about fifteen minutes." From these indications one

can judge how onerous was the treatment of a given case of laryngeal diphtheria when intubated. The mortality records were being reduced; indeed we had reached 68 per cent. when the serum-treatment came as an aid to prove the real utility of the intubation.

What is our present method? It is mainly to the specific action of Behring's diphtheritic heil-serum that the changes in our treatment are due, and the after-treatment in each case is inseparably interwoven with the use of the serum. Hence with a knowledge of how the serum will act, the operation for the relief of the stenosis has become an exact one. Analyzing the various cases as we meet them, I have learned to look upon this special form of the disease as a twofold type, and in my operative procedure I adapt methods to whichever type the case presents. These types I designate as primary, the so-called membranous croup, in which the disease begins primarily in the larynx; and, secondary, the so-called "true diphtheria of the larynx" in which the disease begins as a faucial, nasal or tonsillar diphtheria and extends to the larynx by the contiguity of the membrane. We may have the disease appearing secondarily to, or as a complication of, another infectious disease, such as scarlet fever, measles, whooping-cough, typhoid fever, or the like; under these conditions it is well to consider it in the class of the secondary type, and treat it accordingly.

Much depends upon whether the type be primary or secondary in determining whether to inject the serum and wait for intubation, whether to intubate first and then use the serum, or whether to intubate and first use other means, as the injection of strychnin or saline solution, and leave the question of specific treatment in abeyance, in the face of imminent danger from death.

Most of my cases are seen in the practice of others, generally when the case is very far advanced and when the operation of intubation is an urgent one. The question of the use of Behring's heil-serum being no longer a debatable one, it may have been used, or I may use it at the time of the intubation. Therefore the diagnosis of the type bears greatly upon the treatment with the serum, and influences to a considerable extent the question of the prognosis. For example, if a primary case be seen so late as to require intubation, it may be, and in most cases will be, early enough to be influenced by the serum treatment. The danger in these cases is mostly due

to the stenosis, this being relieved and the diphtheria treated with the serum (no matter how late, provided the disease still be in the larynx only), even if it be on the fifth, eighth or even the tenth day, a favorable prognosis can be given, and the tube can be removed on the fifth day after intubation, and remain out. The explanation of a case like this lies in the fact that the larynx is devoid of lymphatics, there is consequently very little infection or toxemia, the serum used is sufficient to neutralize this and the case recovers. If such a case of primary laryngeal diphtheria be seen early enough, that is, in the first two days, and the serum be used in sufficient dosage, the case will in all probability get well at once and intubation will not be required.

In the secondary cases where there are all the evidences of diphtheria, either faucial, tonsillar or nasal, what should be done when the larynx becomes involved?

Here the condition is vastly different. The danger in cases like these lies not so much in the "stenosis" as in the "toxemia." These cases are, happily, at this day very rare. The diphtheria serum treatment is now sufficiently well known, and so universally used, that this particular type of laryngeal diphtheria is an exception. However, in cases like these, even when the stenosis is not very well marked, intubation should be performed at once. Why? The progressive type of the disease always reaches the point of danger to life by reason of the suffocation which results from the progressing membrane, and if relief be not given at once, the patient, though obtaining a sufficient amount of the specific heil-serum, may not live long enough (from 72 hours to 120 hours) for the serum to do its work. Hence, in all cases of secondary diphtheria of the larynx, intubation should be performed at once, or at the earliest indication of need, thereby saving time and seizing the opportunity for the greatest good.

When diphtheria of the larynx comes as a complication to measles or other disease, and the symptoms are not recognized early (that is on the first two days) when a sufficient amount of the serum can be given, even as an immunizer, then should intubation be performed at once; for the progressive stenosis of the secondary type occurs here, and the case may become much worse, as regards the stenosis, before the serum will do its work.

I take it that you have all become familiarized with intubation, therefore to describe its technique would be superfluous. We will

suppose that we have just intubated a case, the questions now to be answered are:—(1) Have you intubated correctly? (2) Can you leave the case safely? (3) What shall be the medical treatment of the patient? (4) How to feed the patient?

To the first question, the patient's condition will be a sufficient answer. If you have succeeded in placing your tube correctly, there will be at once a whistling sound followed by a cough. The child will attempt by coughing to dislodge the tube. I may here give my method of dealing with the tube, before and during the operation. These tubes are of metal and are always newly gilded. No matter how often I intubate in any given case, I always use a comparatively new tube. When I receive the tubes from the gilder, I boil them for a short time in sterile water and then place them in sublimate cotton until used. When I wish to use them, I place them again in boiling water, and then, previously to the intubation, in a solution of peroxid of hydrogen.

As a preliminary to intubation, I invariably use a spray of peroxid of hydrogen. This, by means of an atomizer, is thrown into the mouth, on the tonsils, into the pharynx and larynx, and indeed upon every point in the throat that can be reached. This solution, as you all know, makes a rather thick lather, this lather acts as a lubricant to make the tube slip easily into place, and also to prevent the accident of pushing down the loosened membranes or the like. Experience having proven to me, that only when the parts are very dry, and difficulty is met with in entering the larynx, do accidents occur. Using the solution of peroxid reduces this danger to a minimum, so that the peroxid has real value in this operation. After the tube is in place, I may use this spray several times in succession, or until I hear the air enter and leave the tube in a normal manner. I then cease using my spray, and give the patient some stimulant or other to drink, and after I am satisfied that the tube is correctly placed and that everything regarding it is in a perfect order, I then consider the next step, viz., can the patient be left alone or with untrained attendants? This each case must decide for itself. Generally if, after an hour has elapsed, the child rests easily, the air enters and leaves the lungs unimpeded, the condition of the child shows that the blood has become again filled with oxygen, the danger from suffocation has passed and the child can be left safely for any number of hours that the after-treatment may require.

The medical treatment depends upon the type of case, that

is, whether it be a primary or secondary, or whether it be a diphtheria pure and simple, or a complication of another disease. I may summarize these observations briefly thus:—The serum treatment of diphtheria having resolved itself into a “specific” treatment as regards the cause, each and every case, no matter what may be its type, whether a primary or secondary, a complication or a reinfection, is treated by the serum, and for the rest our efforts must be to meet symptoms, or to treat one that by reason of its magnitude has become as serious as the disease itself.

Generally in my consultation work, I inquire as to the method of treatment most familiar to my colleague, and if his method is suitable, I reconcile the future treatment of the case to his methods. Thus if the physician favors the use of iron, or mercury, or the like in the treatment of his cases, I do not permit his treatment to be disturbed, but continue the same. My whole endeavor is to treat the new condition of the patient, that the presence of the tube introduces. This resolves itself into:—(1) Getting the patient to accommodate itself to the presence of the tube. (2) Getting the patient to take a sufficient amount of necessary food, stimulants, or medicines. (3) Preventing any accidents arising from or by the presence of the tube, such as clogging of the tube by loosened membranes or inspissated mucus or other secretions, or expectoration of the tube by coughing or vomiting, or injuries or irritations with inflammation, edema or the like from the presence of the tube. (4) The prevention of complications or sequelæ, such as pneumonia, atelectasis, heart failure, the prolonged wearing of the tube, or tracheotomy.

To answer the first question I may say that in all my intubations I always remove the silken thread that is passed through the eye of the tube. It sometimes causes vomiting and always irritates. The child continually chews upon it. If it be permitted to remain there is always the additional danger of the tube being suddenly withdrawn, either by the patient, or by some accidental pull upon it. Hence I feel that the additional freedom given the patient by its absence is more beneficial than any security its presence gives. Sometimes I find difficulty in getting the patient reconciled to the tube's presence. When I find the patient excitable, so that the mere presence of the tube acts as an additional excitant, my endeavor is to quiet the patient, and the more so, if the child suffers additional pain from the hypodermic injection of a large quantity of serum, or has great difficulty in swallowing, or pain in the throat, or possibly pain in the ear.

For this purpose there is no better drug than opium, in any form. For example, to a child three years old, fifteen or twenty drops of paregoric every two, three or four hours, as required throughout the illness. In older children hypodermics of morphin or even opium in suppositories may be used. This one drug has proven sufficient to meet all indications along this line, and its value is far greater than one would suppose in the grave conditions met with immediately after the intubation, and sometimes after extubation. Experience has proven to me that if a patient lives through the first twenty-four hours with a tube in the larynx there is a fighting chance of getting the case through. The greatest danger lies in the heart. By the use of the opium the whole circulation is quieted, so that the most alarming symptoms subside, and the case assumes a more favorable aspect.

After the patient is reconciled to the presence of the tube, the next endeavor is to suitably nourish the child. If the patient is an infant, or below the age of two years, the difficulties are greater than in later years. The reason of this is the liquid character of the food. It is an almost impossible task to get liquids into a child's stomach, if a tube be in the larynx, without a little fluid engaging in the tube and bringing on a fit of coughing with all the consequences thereof. Hence in each case we should endeavor to devise some method of avoiding this. If the patient is a suckling, the mother is instructed to nurse lying on a bed or couch, with the head and chest lower than the rest of the body. The food will thus pass over the tube by passing over the roof of the mouth. For a "bottle-fed" the position during feeding should be arranged in a similar manner, so that the child can nurse with less difficulty. If the patient be one of older years, used to a mixed diet, the difficulty is not so great, for a semi-solid diet may be given, such as pap, crackers and milk, jellies, lady-fingers soaked in milk, oysters, ice-cream or the like. And if the case be a child still older who can take table food, anything and everything the child craves may be allowed, even if it be a piece of meat, or bread. The tube acts mechanically as an impediment to the entrance of food into the stomach, devise a method of avoiding the obstruction and favorable results are gained. While giving semi-solids, or food-stuffs that are porous, such as the lady-fingers, we can moisten them with stimulants, such as wine, or whiskey, and by this means we can often give very appreciable amounts of necessary medicines to our patients.

Our next care must be to prevent accidents, first of all the clogging of the tube. Should the lumen of the tube become narrowed by reason of the secretions becoming inspissated or dried, we can by the use of the atomizer and the peroxid of hydrogen liquify and remove them. Should it be impracticable to apply the spray, or should this be impossible, we can use the peroxid diluted as a gargle or even as a drink, the small quantity that engages in the tube is sufficient to act as a cleanser. Should the foreign substance be a piece of loosened membrane the procedure is the same, only our efforts must be more energetic. Should this method be unavailing our recourse then is the removal of the tube, and, if necessary, prompt reintubation.

Another accident, and one that is a natural result of coughing, vomiting, or the clogging of the tube is extubation. In very many instances such a removal of the tube is a very favorable sign and indicates the convalescence of the patient. If we find that the patient can exist without the tube in the larynx we can consider the case as "cured" and need no longer use it. If, after the tube has been removed by some sudden exertion, the stenosis still persists, prompt reintubation is the rule. This accident is more frequent in cases that have a coexisting bronchitis, or where the tube is somewhat too small for the particular child. If, therefore, we find the patient ejecting the tube, almost as promptly as he is intubated the only remedy is to pass a larger tube. Sometimes it is necessary to use a tube one or two or even three sizes larger than the one normally required. It is a very good rule in such cases, where the patient lives quite a distance from the operator, to pass a larger tube at once, and thus prevent any accident from too long absence of the tube. Whilst the introduction and the extraction of the tube may be made in the most skilful way and the operation be entirely devoid of any injury, the tube by its presence may exert an evil influence, like any foreign body, and this sometimes despite every effort to prevent it. The cause is the prolonged presence of the tube, that is, the necessity that compels the presence of the tube even after the initial disease has disappeared. If, by the presence of the tube, an irritation of the mucous membrane of the larynx is set up this may lead to edema or to an inflammation, which in turn gives place to ulcerative action going so far as to destroy the tissues and causing most alarming symptoms of suffocation from collapse of the cartilages for which it may be necessary to continue the tube for an indefinite period, or to perform tracheotomy.

These injuries have been fully investigated by Bokai and others and the result of these observations has been to teach us always to endeavor to prevent these complications by an early extubation. If the tube can remain out the case is safe. If not, we proceed in the manner to be described further on.

A natural question always asked in intubation is "What are the complications most to be feared?" The dangers supposed to threaten are pneumonia and atelectasis. The most real danger is from heart failure.

Pneumonia or "schluckpneumonie" as a result or complication of the intubation is to my mind a theoretical danger. I have never seen it. Indeed, I question whether it has ever been seen. I do not deny that pneumonia is present in our cases and frequently enough to be classed with our prognostic signs, but I have always found it to be the result of the disease and not the treatment. I have seen it often enough to know that it exists, but I invariably find it in a certain class of cases and not in all. For instance pneumonia may frequently, and often does, follow after intubation (even two or three days after the tube is removed and the case as regards the laryngeal difficulty is cured) and in cases of laryngeal diphtheria that come as complications or sequelæ to measles. Again it only comes in those cases of measles and diphtheria that have been neglected. In other words, in those cases in which the serum has been used very late, and in which intubation was performed almost as a "last resort." Here we may find atelectasis and though this may occur in various types of the malady we always find it in the neglected cases. The cause is not far to seek. For the patient when almost suffocating makes great efforts to inspire. The result is a collapse of the lung. In all cases that have died from pneumonia or from atelectasis, that I have been fortunate enough to investigate, I have never found any foreign substance in the lungs, or even in the trachea. It is true that frequently calcareous deposits are seen in and around the tube but these are more in the nature of what is to be expected when a metallic substance is placed in a cavity of the body. It may be likened to the tartar that gathers on a gold crown in a normal mouth and denotes nothing.

The treatment of coexisting pneumonia is really a work of art. We cannot pursue the same methods as in an uncomplicated pneumonia. Indeed every detail is different. For instance, in a pneumonia of the simple kind, we expect the certain limitation of

the disease to be a factor and treat the case accordingly with wet packs, sponging or similarly. In pneumonia with intubation, such an expectation is erroneous. The variety and the course of a pneumonia in intubation is vastly different. For instance a "crisis" I have never met. Hence the treatment of these conditions must be different. Our endeavors should always be to supply a supporting treatment. No wet packs but stimulation, judicious and accurate. It must not be forgotten, in the choice of our remedial agents, that the case is one that may be of long duration. We must never lose sight of the origin of the disease, that is, the diphtheria or the measles, and the presence of the tube in the larynx. In the treatment that must be pursued our very first endeavor must be to treat the diphtheria and get rid of the tube. This can be accomplished in from five to seven days. After the removal of the tube, the pneumonia may still be present, either unchanged or improved. The treatment of this condition must be persisted in and a satisfactory result may be had. For the treatment of a coexisting pneumonia or even a bronchitis proper measures should be taken from the moment of intubation. These include the administration of digitalis, in the form of an infusion or tincture, and carbonate of ammonia, or the aromatic spirits in suitable doses, and strychnia which belongs (with me) to the management of every case of diphtheria, and especially to those intubated.

For the atelectasis, I use counter-irritation, oxygen inhalations, and diffusible stimulants. Even after the alarming symptoms have somewhat disappeared, we may still have to treat an edema of the lung tissue that was the subject of the collapse.

The most constant danger in intubation is "heart-failure," or more properly, paralysis of the heart.

No one can cure "heart failure" and I am beginning to believe that no one can cure "beginning (true) heart failure." Hence it should always be our endeavor to prevent this complication. Even if the pulse rate be good, and the physical condition of the patient of the best I take it to be good practice always to give such medicaments as are used to strengthen the heart muscles. I would most earnestly emphasize this, for I have so often seen sudden heart failure in cases where it was least expected, and in other cases that had been most carefully watched for any indication, that I have now made it my rule in practice to begin the after-treatment of every case of intubation

with a hypodermic injection of a suitable dose of strychnia. The strychnia I continue, and use it as religiously as I would the nourishment or the stimulant. In every case of diphtheria of the larynx intubated, of any type, I would make this plea as earnestly as I would that for the serum. If I were to intubate a case of the type coming as a sequel to measles that had been neglected, I should begin my treatment with a hypodermic injection of strychnia, even before the intubation, and most certainly before the serum. So much good have I seen result from the correct use of the strychnia, that almost hopeless cases have been cured and the use of the tube and serum made possible by the prior use of the strychnia. For these reasons, I always direct, no matter what may be the treatment, that as long as the tube is in the larynx or so long as the patient requires medical attention, so long should strychnia be the sheet-anchor of the treatment.

To summarize the after-treatment of intubation in laryngeal diphtheria:—

First, the introduction of a suitable tube, not in ratio to the age, but in ratio to the size and the condition of the child.

Second, food, liquid, if possible; semisolid, or even solid if necessary.

Third, strychnia, in proportionately large and decided doses, perhaps in increasing doses.

The most serious question remaining now is the removal of the tube. This requires considerable thought. Since the introduction of the serum treatment the experience gained has been of much assistance in deciding this question. It has been proven by clinical manifestations, that it takes from 72 hours to 120 hours for the membranes to disappear from the throat in these cases. This is the general rule. Of course there are exceptions. However, being guided by this, I never make my first attempt at a removal until 120 hours have elapsed. If the case be a normal one, the serum acting correctly, the case may then be cured. If, however, the case cannot exist without the presence of the tube, I immediately reintubate. I then permit the tube to remain undisturbed for four days more, and then attempt removal. Should there be the slightest symptom of suffocation, my tube remains until no longer required, be the time a day, week or month. If the tube remains longer than the second extubation I dignify the case with the title of a prolonged intubation. Then I begin to intubate and extubate with progressively smaller tubes until the case

no longer requires them. Meanwhile, I never forsake the strychnia, and continue its use, in progressively larger doses, until I have obtained a satisfactory result.

Congenital and Infantile Myxedema.—Pathologically sporadic cretinism, or infantile myxedema, may be separated, according to Pineles (*Münch. Med. Wochenschr.*, November 18, 1902) into two or more distinct diseases. The first of these, congenital myxedema, is dependent upon congenital absence of the thyroid gland. He bases this classification upon twenty autopsies made in cases of so-called sporadic cretinism, and states that he is of opinion that the greater number of cases of sporadic cretinism are really congenital myxedema. Another division is infantile myxedema; this condition arises as the result of a diseased state of the thyroid gland, the affection beginning some time after birth, usually about the sixth year. A very small number of cases of sporadic cretinism does not fit in with either of these, and they should be the only ones to retain the name "sporadic cretinism." Clinically, congenital myxedema, infantile myxedema, and endemic cretinism are easily differentiated.—*American Medicine.*

The Significance of the Presence of Streptococci in Market Milk.—Raymond Clinton Reed and Archibald Robinson Ward (*American Medicine*, February 14th) report the results of an investigation to determine the relations between the presence of streptococci in cow's milk and the occurrence of diarrheal diseases in children. The authors draw the following conclusions from their work: (1) The classification of streptococci is indefinite. (2) The transition from the condition in which a few streptococci remain after a mild attack of mammitis to one in which streptococci are found in a healthy udder, is a slight one, and there are no means by which such streptococci can be differentiated. (3) Streptococci are found in the healthy udder probably more frequently than was formerly believed to be the case. (4) To understand the conditions under which these streptococci harbored in the healthy udder will become virulent will require a further study of the pathology of mammitis.—*New York Medical Journal.*

THE PAROXYSMS OF WHOOPING-COUGH TREATED BY PULLING THE LOWER JAW DOWNWARDS AND FORWARDS (NAEGELI).*

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In the third edition of his "Therapeutics of Infancy and Childhood" Jacobi¹ says, "The mortality from whooping-cough in New York City is as great as that from typhoid fever. Twenty-five per cent. of all the cases under a year terminate fatally, 5 per cent. of all those between the first and fifth years, and 1 per cent. of all those occurring after the fifth. Its direct mortality, however, is not the only danger, for not infrequently chronic laryngitis, pneumonia, emphysema, dilatation of the bronchi and the results of hemorrhages which occur during the attacks (convulsions, paralysis, either general or local, blindness) impair the health of the patient for many years or a lifetime. Thus the tendency to allow whooping-cough to run its full course on the plea that it is a self-limited disease or that every child must have whooping-cough is not justified." Such statements carry with them a forcible argument for exerting renewed efforts to mitigate or cure this obstinate and dreaded affection, and to guide our cases to a favorable issue.

In the treatment of whooping-cough two facts have been definitely established; first, that all measures to be efficacious must be directed toward diminishing the number and severity of the paroxysms, and, second, that the success of medicinal treatment thus far has been in inverse proportion to the remedies recommended for the cure of the disease. The drug treatment of pertussis, despite the various preparations recently introduced, has been so unsuccessful that any new measure having for its object the alleviation of the patient's sufferings must certainly be considered as worthy of attention. So many and varied have been the drugs recommended for this disease, that it would be an easier task by far to mention those that have not been tried. To

* Read before the Section on Pediatrics, the New York Academy of Medicine, April 9, 1903.

the credit of the profession be it said, however, that the vast accumulation of literature on the subject, is but another expression of its tireless search for remedies to alleviate or cure suffering.

It is not my purpose to review or pass upon the merits of all the drugs and procedures that have been recommended for this affection—antispasmodics, narcotics, nervines, anesthetics, astringents, inhalations, local applications, intubation, tracheotomy, vaccination, formalin, diphtheritic serum, counter irritation over the pneumogastric, compressed air, carbonic acid gas per rectum, suggestive therapy, ozone, pertussis serum (Leuriaux²)—nor to discuss the various theories of its causation—microbic, neurotic, specific catarrh of the respiratory apparatus, general infectious disease, irritation of the vagus by enlarged bronchial and tracheal glands (Guéneau De Mussy)—but rather to present for consideration, and I hope for trial, a method which I have applied in a series of cases and one which I believe should be more universally known and practised.

Some two years ago, in reading one of the clinical lectures³ delivered at the New York Post-Graduate Medical School by Dr. Augustus Caillé, I met with the statement that manipulation of the lower jaw as practised during the administration of an anesthetic would overcome the asphyxia of a whooping-cough paroxysm; or, to use his own words, "The attack of spasmodic cough which you notice is now coming on can be checked by pressing forward the lower jaw as you would in a narcotized patient who was not breathing properly. In some children whooping-cough attacks are so severe that they will end in convulsions and it is well to know in what manner such an attack can be easily stopped." Though a mere statement of fact, without any attempt at an explanation of its effect, I considered the method deserving of a trial, in view of the absence of any known specific for the disease, and because of the usual lack of success in treating it. At that time, the clinical material at my disposal was unusually large and enabled me to give the method a thorough trial; that is, as thorough as is possible with dispensary patients. I desire to state at this point, that when I began my observations I had no knowledge of the article by Naegeli to which I will refer later.

Accordingly, all cases of whooping-cough presenting themselves at the dispensary from June, 1901, to the present date, were subjected to this treatment at the time of their visit and the fol-

lowing results were obtained: In all, 96 cases were recorded, ranging in age from three months to eight years; no selection of cases was made, the children being taken as they came; all grades of severity and all stages were observed, those with and those without a whoop. In the latter class (5 in all) the diagnosis was based upon the prevalence of the disease in the immediate vicinity, the history of exposure, the characteristic expulsive expiratory cough, the vomiting, congestion of the face, edema of the lower lids and the usual absence of bronchitis. Of these, I can report but nine failures (about $9\frac{1}{3}$ per cent.), that is, nine in which the method had absolutely no effect on the paroxysm at the time of the child's visit to the dispensary. Two of the failures occurred in the cases without a whoop. In the remainder, there never was a time when at one visit or the other I could not control the paroxysm and the oncoming whoop by pulling the lower jaw downwards and forwards. It may be, that even in the failures success would have been attained at some time or other could the procedure have been carried out regularly at home. In infants and young children the method seemed less efficacious than in older ones; they were more easily frightened by the manœuvre, and as they could not be assured that the method was painless, their crying rather increased the severity of the paroxysm or brought about another. That crying, emotion, changes in temperature, swallowing, and irritation of the throat precipitate an attack is well known. In some young children, however, it acted remarkably well. It would be highly desirable if the effect at the different ages was reverse, inasmuch as the younger the child the greater is the danger of profound asphyxia and convulsions. In some instances, when the lower jaw was pulled forwards at the beginning of the attack, the paroxysm ceased as if by magic and no whoop occurred. It may be questioned how it is known that in this set of cases a whoop would have occurred. As a control experiment, after arresting the expiratory spasm, another paroxysm would be brought about by suprasternal pressure or an examination of the throat, the patient would be permitted to whoop once or twice and then at the end of the second or third expiratory spasm, that is, just before the expected whoop, the lower jaw would be pulled downwards and forwards and no whoop would occur. In the series, 2 cases of epistaxis were noted in which during the paroxysm blood would literally pour from the nose; in these, the method acted well and the bleeding was controlled.

One boy of eight years had a severe subconjunctival hemorrhage which increased daily; in this instance pulling the lower jaw downwards and forwards stopped the paroxysms and with them the danger of further hemorrhage. Many mothers became frightened at the sight of my pulling the jaw, but when they noticed the good effect, their faces assumed an expression of satisfaction and relief. Older children were also alarmed at first, but later submitted willingly; in fact, some of them hastened to me for relief at the onset of the attack. In most of the cases, and more particularly when the paroxysms were severe and frequent, the method was demonstrated to the mother or attendant, with instructions to adopt it in general, and always for the night attacks. Many returned to state that it proved successful.

O. Naegeli,⁴ to whom is due the credit of first advocating this method of treatment for the paroxysms of pertussis, after stating in his article of July, 1889, that to cure without medicine is the ideal therapy and that physicians have become sceptical as to a new specific for the disease, expresses the hope that in recommending a simple manœuvre to control the asphyxia of a whooping-cough paroxysm, the profession will give him a favorable hearing. Unfortunately, his contribution has fallen by the wayside, for with few exceptions I can find no reference to it in medical literature. The mere fact that the standard works and writings of Hensch, Jacobi, Baginsky, Monti, Filatow, Marfan, Koplik, Holt, Genser, Seitz, J. Lewis Smith, Ashby and Wright, Eustace Smith, Griffith and Dawson Williams, which refer *in extenso* to the various measures recommended, contain no mention of this procedure is to my mind a proof that the article has been overlooked rather than that it has been considered unworthy of note. In fact, the very recent contribution on whooping-cough by George Sticker,⁵ while quoting a very extensive literature, also fails to mention Naegeli or his method. Whitla,⁶ in his Dictionary of Treatment, and Escherich,⁷ in his article on tetany, speak of it in passing. O'Dwyer and Norton,⁸ under the heading of mechanical treatment, say, "Naegeli reported that in two children he succeeded more than five hundred times in apparently arresting the spasms of pertussis by pulling the lower jaw downwards and forwards. His experience, however, so far as can be found, has never been confirmed by other observers." H. Neumann⁹ remarks that for arresting the attack it has been recommended to pull both cornua of the hyoid bone

upwards for sixty to ninety seconds or the lower jaw forwards. Eichorst¹⁰ mentions at the extreme end of his article, "Manipulation of the lower jaw during the attack as in chloroform anesthesia" (Naegeli).

Naegeli believes that the whole therapy of pertussis should very properly be directed to the glottis spasm, quoting Niemeyer as saying that "Every paroxysm of cough is an irritant to the laryngeal mucous membrane; the more violent they become the more quickly fresh mucus accumulates and the sooner another attack is to be expected. If we can diminish the severity of the attacks of cough, the course of the disease will be shortened." He then adds that *if we could arrest the spasm of the glottis the back bone of the disease would be broken.* In this connection, it is interesting to note the statements of O'Dwyer and Norton,⁸ who, preparatory to their recommendation of intubation for relieving the spasm of the glottis in pertussis, say, "Spasm of the glottis is the sole cause of the acute suffering in uncomplicated whooping-cough, and could this element be removed the disease would be reduced to the level of an ordinary bronchial catarrh. The fear that children exhibit on the approach of a paroxysm, when they drop their playthings or other occupation and run to the mother or nurse for relief, is not the dread of the cough or the vomiting that follows, but of the torture that results from prolonged spasm of the glottis. In the adult, this feeling is intensified by the sense of impending death which can never be gotten over no matter how often experienced. It is not the last hour that has come, nor the last minute, but almost the last second. The suffering is not due solely to want of air, because it begins the instant the spasm begins and often when the lungs are well supplied with air; on this point, one of the present writers (O'Dwyer) can speak from personal experience, having had whooping-cough when over forty years of age, and complete spasm of the glottis from other causes many times. *Spasm of the glottis being not only the sole cause of the acute suffering in pertussis but of most of the dangers as well, the main object of medication is the relief of this symptom.*" In describing an attack of pertussis personally experienced in 1886, Naegeli states that at the beginning of the paroxysm he felt as if a trap door had been lowered upon him and had cut off all the air; inspiration became impossible on account of spasm of the glottis, and frequently no mucus was expectorated after the paroxysm; there was a tonic

spasm of all the laryngeal muscles, the entire respiratory muscular apparatus of the neck and the muscles of the face partaking of the attack. At the height of the paroxysm, despite a protruded tongue, a condition simulating trismus occurred. He states that, at the beginning a minimum amount of air could be inspired with the well-known inspiratory crow, while at the acme of the paroxysm the cough was toneless. "Now," says he, "could the rima glottidis be opened again so that the inspiratory current would be sufficient, then the whoop, with its congestion and all its consequences, would disappear, as it were, with one blow." He then proceeds to show that Kappeler in his experiments has proven that the asphyxia of chloroform narcosis bears a great resemblance to that of pertussis, the difference being that in the latter, in addition to the mechanical closure of the upper part of the larynx there is a closure of the glottis due to a spasm of the cricothyroid muscles. Kappeler furthermore states that the most efficacious method for clearing the entrance to the larynx is undoubtedly raising the lower jaw after the manner of Howard and Heiberg, which consists in standing behind the recumbent patient, placing the thumbs on the symphysis of the lower jaw, the flexed index finger behind the ascending rami and pulling forcibly and directly forwards. Prompted by these experiments and results, Naegeli applied the manœuvre to his own children of seven and four years, respectively, who were ill with pertussis, trying it for five weeks, day and night, at least five hundred times in all. His results were brilliant at the first attempts, the cough stopping immediately when the lower jaw was raised. After a thorough application of this method he modified it as follows, according as he grasped the lower jaw from (*a*) in front or (*b*) from behind.

(*a*) When in front of the patient he placed the index and middle fingers on the rami in front of the ear, the thumbs on the chin and with a forcible but gentle pull and pressure he pushed the lower jaw downwards and forwards. If the mouth was opened and the tongue extended he placed the thumb or index fingers in the region of the canines, the remaining fingers on the body of the lower jaw and thus pulled downwards and forwards. Very frequently he placed only the thumb or index finger back of the lower incisors, the remaining fingers of that hand under the chin and then manipulated the lower jaw as before mentioned, keeping the other hand on the forehead for counter-pressure.

(b) When behind the patient, he placed both thumbs against the angle of the jaw, the index fingers on the zygomatic arch, the remaining fingers on the chin and thus pushed downwards and forwards; or the index fingers were placed in the mouth behind the canines and thus aided in the manipulation.

When the lower jaw had been raised the patients were directed to take a deep breath. It is understood that this statement applies only to older children.

With my cases, I have found that a single method practically answers every purpose, and so when in front of the patient I place the flexed index and middle fingers against the angle of the inferior maxilla, both thumbs along side of the nose and against the superior maxilla, and then pull downwards and forwards. If behind the patient, I place the flexed index and middle fingers against the angle of the jaw, the thumbs along its body, the remaining fingers beneath it and thus manipulate by pulling downwards and forwards.

It may be asked, whether this manœuvre or grasp, apart from its effect upon the paroxysm, that is upon the glottis spasm and its resulting asphyxia, has any influence upon the character and course of the disease. With a dispensary clientèle, which believes with the South German peasant that whooping-cough "continues till it stops," my observations were necessarily limited, for the greater part, to the effect on the paroxysms. It would follow as a logical sequence, however, that as the glottis spasm is the main element in the acute suffering, complications and sequelæ of the disease, and that inasmuch as it is controlled by this method, it would be but natural to expect that the disease would be very materially modified in its severity and duration. In fact Naegeli says that, with this treatment, the disease assumed a milder character, there was no vomiting, bleeding and complications due to increased blood pressure were absent, the course of the disease was shortened and the nights were not disturbed. Some may say that in Naegeli's cases, pertussis existed in the attenuated or abortive form spoken of by Henoch, and hence the good effect upon the course, duration, character and complications of the disease was only apparent and would have occurred irrespective of this or any other method of treatment. Admitting this for argument's sake, it still remains true that the glottis spasm, the main element in the paroxysm, is efficiently and almost instantly overcome in the great majority of cases. It thus appears

that this method brings about the objects of treatment formulated by Jacobi, namely, "to relieve the severity and diminish the number of the attacks, to procure quiet nights, to stop the vomiting, to shorten the course of the disease and to prevent detrimental consequences." For mothers, nurses and other attendants, this method of pulling the lower jaw downwards and forwards for the control of the paroxysms is to be highly recommended. *Every spasm cut short or arrested, every whoop prevented, spares the heart, lungs, brain and nervous system from so much wear and tear.*

At the beginning of my observations, I thought that the good of this method could be attributed to the pulling forwards of the tongue which had fallen backwards. Soon, however, it was seen that severe paroxysms took place with the tongue protruded, and these were controlled by the aforementioned manœuvre. Naegeli considers the effect of this manipulation due, firstly, to reflex action, producing thereby a relaxation of the tonic muscular contraction, and secondly, to mechanical action, in that by raising the entire larynx and the hyoid bone, the epiglottis is elevated and the rima glottidis perhaps opened. Whether this is the proper explanation or not, or whether by this means the pneumogastric is stretched (counterirritation) or the trachea elongated, with relief of irritation at the bifurcation, I do not profess to know. Certain it is, however, that by means of the manipulation the paroxysm is overcome immediately or in a few seconds in the vast majority of cases. With Naegeli's children the method was successful every time and vomiting did not take place except when no one was at hand to manipulate the jaw. The manœuvre may be carried out while the child is asleep, so that any argument that the effect is psychical will not hold. The only contraindication to its use is the presence of food in the mouth or esophagus.

Naegeli states that very frequently spasmodic coughs due to other causes may be controlled by this manipulation, though I am free to confess that my experience in this direction has been rather disappointing. Escherich,⁷ in discussing the laryngismus stridulus so commonly associated with tetany, says that Naegeli's manœuvre which arrests the attacks of whooping-cough fails in these instances.

To sum up the results of my experience with Naegeli's manœuvre for overcoming the spasm of the glottis in whooping-cough, I should say:

(1) Pulling the lower jaw downwards and forwards controls the paroxysms of whooping-cough in most instances and most of the time.

(2) The method is usually more successful in older children than in younger ones and infants.

(3) In cases without a whoop the expiratory spasm with its asphyxia is generally overcome, and in those with a whoop the latter is prevented.

(4) As a single therapeutic measure for the control of the paroxysms it deserves a place in the treatment of pertussis and is as successful as any single drug, or even more so.

(5) Mothers, nurses and other attendants should be instructed in its use in order that the oncoming attacks, especially at night, might be arrested.

(6) The manipulation is harmless, painless and easy of application without any of the ill effects of drugs; it offers a maximum good effect with a minimum derangement.

(7) The only contraindication to its application is the presence of food in the mouth or esophagus.

(8) Patients treated in this manner are less likely to suffer from complications and sequelæ, than those treated only medicinally; they emerge from the disease in far better condition, less exhausted and less emaciated because vomiting has been controlled.

(9) It is advisable to try the manœuvre in other spasmodic coughs and laryngeal spasms (laryngismus stridulus, pressure of enlarged cervical and bronchial glands, influenza, glottis spasm in catarrhal laryngitis), although my experience has seemed to show that it is far less efficacious in these conditions than in whooping-cough.

(10) This method, being directed mainly to the control of the glottis spasm, does not preclude the advisability of supporting and sustaining the patient, guarding his gastrointestinal tract, establishing equilibrium in the nerve centres and affording him every possible hygienic advantage.

(11) It is particularly indicated in instances complicated with diffuse bronchitis, bronchopneumonia, convulsions, epistaxis, subconjunctival or subcutaneous hemorrhage, or sublingual ulceration, and in those children who by virtue of age, the presence of rachitis, scrofula or general debility are predisposed to serious complications and sequelæ.

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The Relations of the Enlarged Thymus Gland to Sudden Death.—After reviewing the cases reported in literature concerning "sudden death as the result of hypertrophy of the thymus," and discussing the reasons given by different authors for and against the possibility of an enlarged thymus producing death, Penkert (*Deut. Med. Wochenschr.*, November 6, 1902) reports 2 cases in support of the theory. In both of them no other cause for sudden death was found except the enlarged thymus gland. He concludes that an enlarged thymus without anything more is capable of producing difficulties in respiration; it may even completely compress the trachea, and through this indirectly produce air hunger and death.—*American Medicine.*

Tuberculosis of Lungs in Early Infancy.—Hohlfeld (*Munch. Med. Wochenschr.*, November 25, 1902) reports 2 cases of pulmonary tuberculosis in infants seven and ten months old. The mother of the first child had died of tuberculosis a short time after its birth. The symptoms and signs in both pointed clearly to lung affection with its principal seat in the right upper lobe. Cavities were diagnosed in both of them during life, and sputum collected directly from the pharynx was found loaded with tubercle bacilli. The autopsy of the first case showed a large cavity in the right upper lobe, with miliary tubercles scattered through the rest of the lungs. In the second patient the cavity signs were traced to several bronchiectatic dilations, which were surrounded by tuberculous infiltration. Almost all the organs showed tuberculous nodules.—*American Medicine.*

CONGENITAL ASYMMETRY OR HEMIHYPERTROPHY IN AN INFANT.*

BY A. HYMANSON, M.D.,
New York.

Israel Y., a male, six months old, was first seen September 5, 1901.

FAMILY HISTORY.—His parents were born in Russia, and are of fairly good habits. They have been married twenty-five years, and are not consanguineous. The father is forty-four years of age and was perfectly well until eight years ago, when he had some septic trouble of the left leg. He was sick for several weeks. Finally an amputation was performed at the middle of the thigh; otherwise he has been well. The mother is forty-two years of age and has given birth to thirteen healthy children, two of whom died of some acute disease. There is no history of deformities in either parent's family.

PERSONAL HISTORY.—Patient was born at full term on July 1, 1901, weighed twelve and one-half pounds. The labor was difficult, but forceps were not used. When the child was six weeks old, his mother noticed that his right upper and lower extremities differed in size from the left ones. (See Figure I.)

PHYSICAL EXAMINATION.—The child was in excellent physical condition and weighed fourteen pounds. The flesh was fairly firm and skin and subcutaneous tissues were normal in character. I took careful measurements and found that the right forearm (middle third) was larger in circumference than the left by one and one-quarter inches, and the right arm by five-eighths of an inch. The right leg was larger in circumference than the left by five-eighths of an inch, and the right thigh by three-fourths. The right upper extremity was longer than the left by three-fourths of an inch, and the right lower extremity was longer than the left by seven-eighths. The width from the right acromion process of the scapula to the spinal column was five-eighths of an inch greater than the left. I also found the right side of the ear,

* Presented before the Section on Pediatrics, New York Academy of Medicine, a nuary 9, 1902.

thorax, abdomen, scrotum, testicle, and buttock more developed than the left.

The head of the child was moderately covered with hair, but the hair on the left side was somewhat coarser and less inclined to curl than on the right. The fontanels were open; there was no craniotabes.



FIG. 1.—CASE OF CONGENITAL ASYMMETRY. INFANT WHEN FOUR MONTHS OLD.

The patient's expression was somewhat idiotic and he cried a great deal. His face was more developed on the right side than on the left and he always kept his mouth open, possibly owing to the greater thickness of the right side of the tongue. He slept with his eyes half open. His skin was smooth and supple. The reflexes were normal, the muscles and nerves reacting to the faradic current.

On October 1, 1901, the child had about a dozen attacks of convulsions within twenty-four hours. He was most of the time

in a semicomatose condition. Every convulsive attack lasted about ten minutes, the twitchings being more marked on the right side than on the left. The temperature was 101°F . He also had a number of similar convulsive seizures in January and April, 1902. The cause of his ailment could not be ascertained, as there seemed to be no gastrointestinal trouble and no febrile disease and the urine was negative. I prescribed bromids and chloral, and the patient made a speedy recovery.

January 1, 1902. He seemed to be getting more intelligent; he knew the difference between sweet and sour and liked to be held by his mother. He was very nervous and irritable, was restless at night and became frightened when any one knocked at the door.

April 1, 1903. Child was nursed by his mother until one year. He got his first two lower incisors when about eighteen months old, and has at present four teeth. He can sit up by himself, but cannot stand up; he tries to creep around but with great difficulty. He is stronger in the left normal side than in the hypertrophied right side. He is somewhat rachitic; he has the rickety chaplet and the anterior fontanel is wide open. He understands much more than formerly; he takes interest in his surroundings, but does not speak. He is jolly when he receives playthings, but gets angry at the slightest provocation.

HEAD.	Right; inches.	Left; inches.	Difference in inches.
Glabella to occipital protuberance.....	$10\frac{3}{4}$	$9\frac{1}{2}$	$1\frac{1}{4}$
Sagittal suture to tip of mastoid protuberance.....	$6\frac{1}{2}$	$5\frac{3}{4}$	$\frac{3}{4}$
EAR.			
From extreme top to bottom of auricle.....	2	$1\frac{1}{2}$	$\frac{1}{2}$
THORAX.			
Circumference at level of the nipple.....	$10\frac{1}{2}$	9	$1\frac{1}{2}$
ABDOMEN.			
Circumference at level of umbilicus..	$9\frac{1}{4}$	8	$1\frac{1}{4}$
UPPER LIMB.			
Humerus (ulna at right angle) acromion to olecranon	$5\frac{3}{4}$	$4\frac{3}{8}$	$1\frac{3}{8}$
Ulna: olecranon to styloid process.....	5	$4\frac{1}{8}$	$\frac{7}{8}$
From olecranon to tip of middle finger.....	7	$6\frac{1}{8}$	$\frac{7}{8}$
Circumference of arm (middle third)....	$6\frac{1}{2}$	$5\frac{5}{8}$	$\frac{7}{8}$
Circumference of arm (upper third)	$5\frac{3}{8}$	$4\frac{3}{8}$	1
HAND.			
Length from end of radius to tip of middle finger...	$3\frac{5}{8}$	$2\frac{7}{8}$	$\frac{3}{4}$
Thickness from before backwards of centre of palm.	$\frac{5}{8}$	$\frac{1}{2}$	$\frac{1}{8}$
Width across distal ends of metacarpals.....	$2\frac{1}{4}$	$1\frac{7}{8}$	$\frac{3}{8}$
Circumference above the knuckles	$4\frac{5}{8}$	4	$\frac{5}{8}$
Length of middle finger.....	$1\frac{3}{4}$	$1\frac{1}{2}$	$\frac{1}{4}$

LOWER LIMB.

From anterior superior spine of ilium to external malleolus	11 $\frac{3}{4}$	10 $\frac{5}{8}$	1 $\frac{1}{8}$
From anterior superior spine to transverse axis of knee joint (outer aspect).....	9 $\frac{3}{8}$	8 $\frac{1}{8}$	1 $\frac{1}{4}$
Tibia (transverse axis of knee joint to internal malleolus)	7 $\frac{7}{8}$	6 $\frac{1}{2}$	1 $\frac{3}{8}$
Circumference of thigh (middle $\frac{1}{3}$).....	8 $\frac{1}{4}$	7 $\frac{1}{4}$	1
Circumference of calf (middle $\frac{1}{3}$)... ..	6 $\frac{1}{8}$	5 $\frac{3}{8}$	$\frac{3}{4}$

FOOT.

Length from heel to great toe.....	5 $\frac{1}{8}$	4 $\frac{1}{2}$	$\frac{5}{8}$
Circumference around the heel and instep (middle of the metatarsals).....	4 $\frac{1}{8}$	3 $\frac{5}{8}$	$\frac{1}{2}$

Comparing these measurements with those taken some time ago, I find that the right hypertrophied side is growing rapidly, while the left side is somewhat slow in its development. (See Figure II.)

Congenital hemihypertrophy was first described by Von Klein¹, later by Reid², and Broca³. Since then about 30 cases have been recorded. It seems that in most of these cases, whether the affection attacks one limb or the entire half of the body, it begins in fetal life. The deformity is probably present very early after birth but is not sufficiently marked to attract the attention of the parents and friends. Logan⁴ mentions a case where the trouble was first noticed shortly after birth.

Pathology.—William Anderson⁵ mentions four views that have been advanced in regard to the pathological origin of this affection: (*a*) a congenital lesion of the vasomotor centres leading to vascular stasis; (*b*) a primitive vice of the middle laminae of the blastodermic membrane; (*c*) partial intrauterine strangulation of the affected member; and (*d*) an inherent tendency of the tissues to appropriate an excess of nutriment.

Polloson⁶ thinks it is due to defective lymphatics and is of the same nature as elephantiasis. Barwell thinks it is due to a defect in the muscular coats of the arteries which causes their expansion excessive nutrition of the parts and excessive growth. Duzeu, Trelat and Monad consider it to be of the nature of an angioma, analogous to arterio-venous aneurysms. Duplay thinks it is of nervous origin. No lesions have been found, on autopsy, in the brain or spinal cord, but nevi have been found along the sciatic and crural nerves and also trophic lesions.

W. S. England,⁷ having made a necropsy in a child two years

and two months of age, in whom the left side of the head and face was abnormally developed, found neurofibroma involving all the cranial nerves. These nerves were very much enlarged, some being the size of a lead pencil, and showed nodular swellings. He thinks the hemihypertrophy was due to an abnormal trophic influence of the affected nerves. Since the nervous system through



FIG. II.—CASE OF CONGENITAL ASYMMETRY. INFANT WHEN FOUR-TEEN MONTHS OLD.

its trophic and vasomotor nerves influences cell growth, the view (a) of Anderson, as given above, seems the most plausible one.

PARTS AFFECTED.—There is usually an exaggerated development of some part of the body, mostly on the right side. The disease may be limited to one limb, such as a finger, or the entire half of the body may be affected; the lower extremity is more apt to be attacked than the upper. Jules Comby^s says that in this

ailment all the tissues in the affected parts participate in the hypertrophy—the skin, cellular tissue, muscles and bones. The viscera also take part in this anomaly. Arnheim⁹ describes an autopsy made on a little child in whom he found, together with the increase in size of the right side of the body, an increase in the development of the right internal organs, the kidney, ovary, lymphatic glands, right side of the heart and even valves.

A microscopical examination of the lung tissue showed that the right bronchioles were surrounded by cartilage on all sides, which was not the case on the left side.

ETIOLOGY.—There seems to be no satisfactory explanation as to the causation of this abnormality. Boys are more often afflicted than girls. Syphilis, traumatism, strong impressions, fright, heredity, etc., have been suggested as causes, but the etiology is only conjectural.

PROGNOSIS.—The children, except for the deformity, remain in good health, but the deformity is always progressive up to a certain age.

The affected side is susceptible to ulcerations.

DIAGNOSIS.—When the hypertrophy is limited to one limb it may be mistaken for elephantiasis; but in the latter the skin is uneven, rough and marked with elevations and depressions. In partial acromegaly there is no increase in length of the affected limb.

TREATMENT.—Richard claims to have had success with massage, compression by elastic bandage and by the continued electrical current. Stretching of the sciatic nerve in a hypertrophy of the lower extremity has been resorted to by some and the claim has been made that the progress of the disease was thereby checked; but such procedures do not find favor in the profession.

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INTESTINAL OBSTRUCTION.*

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The importance of early exploration and early operative intervention in abdominal disturbances in general, and in intestinal obstruction in particular, is too apparent to require additional emphasis.

Although mechanical devices and clamps of one variety or another will always occupy a place in intestinal surgery, the tendency is in the direction of the needle and thread as the true surgical method. When the seat of resection or anastomosis can be conveniently reached, and the patient is not *in extremis*, the time saved does not compensate for the step backward in resorting to mechanical devices.

Halstead, of Chicago (*Annals of Surgery*), refers to the statistics of Kelynack, in which Meckel's diverticulum was present eighteen times in one thousand four hundred and forty-six post-mortems. In three thousand four hundred examinations in St. Bartholomew's Hospital there were twenty-seven in which Meckel's diverticulum was found, making one in every one hundred and twenty-six bodies. The same writer reviews Leichterstein's cases of intestinal obstruction, numbering eleven hundred and thirty-four. Thirty-nine per cent. were due to intussusception, 9 per cent. to bands and adhesions, and 6 per cent. to diverticula.

Of another series of cases collected by Haven, Duchanssoy, and Brinton, in all nine hundred and ninety-one, in about 6 per cent. the obstruction was due to Meckel's diverticulum. Halstead believes that Meckel's diverticulum probably occupies a place next to intussusception as a cause of intestinal obstruction.

Opening and closing the abdomen, the necessary examination and manipulation, the resection and anastomosis, required but fifty minutes in the first case which I shall report.

What seems a greater necessity than either devices or clamps is more practice with needle and thread, and a more complete understanding of the various methods of intestinal resection; with these the operator will be able to get the most satisfactory results in all but a very limited number of cases.

* An abstract.

The second case reported is of interest as illustrating the slight degree of intussusception and the peculiar symptomatology. It is important to note that the slightest nourishment would provoke and maintain peristalsis until disposed of. In this we have a practical hint which may be applied in the diagnosis and treatment of other intestinal disturbances. Pain followed the ingestion of food with such uniformity that the child abstained from food almost altogether until reduced to emaciation.

CASE I.—MULTIPLE INTESTINAL STRICTURES OF TUBERCULAR ORIGIN; INTESTINAL RESECTION AND ILEO-COLOSTOMY; RECOVERY FROM OPERATION; DEATH LATER FROM GENERAL TUBERCULOSIS.—This patient was referred to me by Dr. Botts, of Glasgow, Ky. Family history revealed tuberculosis on the maternal side. Personal history of the patient negative prior to present illness.

About eighteen months previously, according to the history elicited, the patient had swallowed a pin which was arrested for a short time in the esophagus. After the lapse of several days pain was experienced in the region of the umbilicus, which persisted with varying degrees of intensity throughout the whole eighteen months. At times the pain amounted to no more than a sense of discomfort, but on several occasions it was so excruciating as to require large doses of morphin for its alleviation. The patient believed the trouble to be obstructive in character, and insisted that he could feel the arrest of the intestinal contents at one point, and that at certain times the obstruction relieved itself. Relief was usually hastened by the ingestion of certain digestive ferments.

In the last six months he had lost some weight, but otherwise appeared healthy. Examination of the abdomen was practically negative, neither inspection, percussion nor palpation yielding any information.

The day of the operation, as well as the day previous thereto, the patient's temperature ranged between $99\frac{1}{4}^{\circ}$ and 100° . An exploratory incision was proposed, the right being reserved to deal with the condition as might be thought proper.

Upon opening the abdomen the cecum was represented by a mass almost twice the natural size, and distinctly inflammatory in appearance. Manipulation showed that the mass was rather dense,

considerably thickened and firmly bound down, but no tubercles were apparent. Inspection of the small intestine revealed two strictures at about the middle of the ileum, each occupying three-fourths of an inch of the intestine, and located about six inches apart. These strictures represented an almost complete occlusion of the lumen of the intestine. To the touch it was apparent that considerable thickening of the intestinal walls had occurred, and inspection showed a few miliary tubercles close to the mesenteric border. Careful search failed to disclose any tubercles in other portions of the abdominal cavity.

Three points of obstruction were apparent, the two strictures already mentioned, and obstruction in the cecal region. Careful examination of the cecal mass determined the inadvisability of attempting its removal. To overcome the cecal obstruction, an ileocolostomy was performed by making a communication four inches in length between the lower portion of the ileum and the colon just above the sigmoid flexure. In making this communication three successive rows of sutures were employed.

The condition of the patient still being favorable, the strictures were overcome by means of a resection performed after the method of Wöelfler, which included both strictures, the amount of intestine removed being about eight inches. The time consumed in this operation was fifty minutes. The intestinal symptoms were at once relieved. The wound healed solidly except for a distance of about one inch at its lowest point, and although no distinct abscess occurred, the process was granular, had a glazed appearance, and yielded very stubbornly to epidermization.

The patient left the infirmary at the end of a month. Although the obstructive symptoms had entirely disappeared, a slight fever persisted and he failed to make progress in regaining strength. Three months later he died of general tuberculosis. Postmortem examination (for which I am indebted to Dr. Botts) revealed general tuberculosis of the abdominal cavity. The result of the intestinal operation was all that could be desired. Microscopic examination of the resected specimens verified the tubercular nature of the trouble.

CASE II.—INTUSSUSCEPTION; OPERATION; SUTURE OF INTESTINE; RECOVERY.—L., aged six years. Family history good; the child had never been sick before; was taken ill about a month previously. The onset of present illness was rather sudden, fol-

lowing soon after eating a large amount of dried fruit. The patient began to complain of severe abdominal pain, which at first was constant, but after the lapse of a few days became intermittent in character. He had been treated for several weeks with various drugs, including opiates, bismuth, digestive ferments and vermifuges.

When seen by me his condition was as follows: Extreme emaciation, temperature and pulse normal, no abdominal pain elicited upon palpation, nor any tumor discernible; pain occurred at varying intervals from half an hour to several hours, and always precipitated and aggravated by taking any form of nourishment; tendency to extreme constipation, but no evidence of distinct obstruction.

An exploratory incision revealed an inflammatory condition about the ileo-cecal valve, which upon closer examination consisted of a considerably thickened ileum protruding into the cecum to the extent of one inch. The intussusception was reduced, the ileum incised, and the incision in the intestine closed by means of Lembert sutures.

The child made an uninterrupted recovery, all symptoms disappearing.

CASE III.—*INTESTINAL OBSTRUCTION FROM MECKEL'S DIVERTICULUM.*—H. K., aged seventeen years. Family history good. When first seen he was suffering from an acute appendicitis of two days' duration. Operation was proposed and carried out. The appendix was found gangrenous, but not ruptured, and its removal was carefully effected and the stump buried by means of a double row of sutures. The patient made a rapid recovery.

During the operative procedure in this instance, as is usually done in such cases, the general cavity was carefully protected, so that practically only the cecum was exposed to manipulation. For this reason the presence of a Meckel's diverticulum was overlooked.

About a month after leaving the infirmary the boy secured entrance to the pantry and devoured a number of apples. This exploit was rapidly followed by colicky pains, which became so severe that the family physician was summoned and administered opiates with but temporary relief. When the effect of the opiates had worn away, pain reappeared with its former severity.

When again seen by me the patient was suffering from severe

abdominal pain referred to a point on a level with the umbilicus and about one inch to the right. His temperature was 99°F., pulse 100; slight abdominal distension, but no tumor. He was removed to the infirmary and on the following morning an exploratory operation was performed, at which time the temperature had reached 100°F., pulse 112, pain still severe and there was considerable distension.

Upon opening the abdomen a few ounces of peritoneal fluid escaped, and distended loops of intestine bulged through the opening. In following the distended coil of intestine an acute strangulation was encountered, occasioned by adhesion of a Meckel's diverticulum to another loop of intestine. This diverticulum was short and stubby in character, measuring about one inch in length and half an inch in diameter. The process was obliterated by folding it parallel with the bowel, and burying it with a row of sutures. The abdomen was then closed.

For two days following the operation marked evidences of peritonitis persisted. On the third day the intestinal functions were re-established, and all evidences of peritoneal disturbance disappeared.

CASE IV.—INTUSSUSCEPTION DUE TO A LUMBRICOID.—B., aged five years. Family and personal history good. Six days previously this child had suffered for two days from a disturbance which was diagnosed by the attending physician as due to intussusception.

When seen by me the child had been suffering for about eight hours from a second attack. The condition was as follows: Temperature 99°F., pulse 120; abdominal examination negative; the patient was in extreme pain, rolling and tossing about, and vomiting a dark fluid. The diagnosis of intestinal obstruction was made and an immediate operation urged.

The parents were wholly unprepared for such advice, and insisted upon delay, hoping that the next few hours might bring an improvement. On the contrary, however, the child grew steadily worse, pain became more severe, vomiting more frequent and stercoraceous in character, and the pulse became rapid and feeble. At midnight the parents consented to an operation, which was carried out as rapidly and as carefully as the crude and imperfect conditions permitted.

The abdomen was opened and multiple intussusceptions were

revealed. Two of the intussusceptions represented a section of three or four inches of intestine; a third consisted of ten inches of the intestine which had become invaginated. All these involved the ileum. The invaginations were readily reduced. Upon reducing the chief of these a good-sized lumbricoid was felt and seen through the intestinal wall; the intestine was incised and the parasite removed. The intestinal opening was united by means of a Lembert suture, and the abdomen was then closed.

For the next six hours relief from pain was complete, and the nausea was only that which ordinarily follows administration of an anesthetic. Toward the middle of the following day there was some return of pain, vomiting increased, and at the close of the first day symptoms returned similar to those prior to the operation, but not of the same severity.

The child died at the beginning of the third day.

CASE V.—INTESTINAL OBSTRUCTION DUE POSSIBLY TO A HERNIA IN RETROPERITONEAL FOSSA.—C. K., aged four years. Family and personal history good. The child had been perfectly well until five days previously. Onset of present attack sudden, consisting of severe abdominal pain, paroxysmal in character and varying in intensity; occasional vomiting of clear mucus; considerable tenesmus, watery evacuations mixed with greenish coagula and a clear tenacious mucus, formed in character, and not unlike a very thin tapeworm. Abdominal inspection negative; palpation likewise yielded nothing; no tumor was visible, and there were no especial points of tenderness.

Upon opening the abdomen distended loops of intestine presented themselves. After a careful search about the cavity the seat of the disturbance was located on the right side, in the cecal region. The intestines in this region were crowded together, but not adherent, although very much congested. After some manipulation the cecum was brought into view.

The age and condition of the child did not permit as careful an investigation as one would desire. There was no invagination, nor could any volvulus be detected, and no bands were observed. The cecum, the beginning of the colon, and the lower end of the ileum seemed to be crowded upward and backward. With some traction the entire mass was brought into view. The appendix was in striking contrast to its surroundings, resembling a wax taper more than a vermiform appendix, and the cecum was slightly congested.

The intestine was opened for a more careful examination of the condition, with negative results. The appendix was removed, and the stump buried by means of a row of sutures. By this time an hour and a quarter had elapsed, and the condition of the patient was such as to make all further efforts inadvisable.

The precise nature of the obstruction was not determined, but in the absence of any bands, invaginations, or volvuli (which it is reasonably certain did not exist), it was suspected that in a child of this age the obstruction was due to a hernia into one of the retroperitoneal fossæ.

The patient was removed from the operating table *in extremis*, and for a time reaction was doubtful. All symptoms disappeared, however, and recovery was uninterrupted.

Antistreptococcus Serum. — Aronson. — This serum is tested as to sterility, harmlessness and antitoxic power in the Royal Institute for Experimental Therapy (Privy Councillor Professor Ehrlich). It is prepared in the Bacteriological Laboratories of the Chemische Fabrik auf Actien, Berlin, Germany.

It is considered indicated in all diseases directly due to the streptococci or in which secondary streptococcic infection plays a prominent rôle, as in scarlet fever, acute articular rheumatism, severe anginas, septic processes (general sepsis, puerperal fever), streptococcus infection in phthisis pulmonum, erysipelas, etc.

A 20 to 30-fold normal serum is supplied now, *i.e.*, 1 c.cm. thereof contains 20 to 30 immunizing units. 0.01 c.cm. of it protects a mouse from infection by 100 times the lethal dose of highly virulent streptococci. The serum is rendered permanently stable by the addition of $\frac{4}{10}$ of 1% trikresol, and its efficacy remains unimpaired for at least 6 months.

The sooner the specific treatment is instituted the more promising are, of course, the prospects of success. According to the severity of the infection and the age of the patient, inject 10 to 60 c.cm. of the 20-fold serum, *i.e.*, 200 to 1,200 units. It is best to administer a sufficient dose *at once*; and if neither fever diminishes nor the general condition improves the injection should be repeated on the two following days.

Clinical Memorandum.

A CASE OF LUDWIG'S ANGINA FROM INFECTION OF THE LINGUAL FRENUM.

BY CHARLES J. ALDRICH, M.D.,

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When Ludwig described the affection which now bears the name of angina Ludovici or cellulitis of the neck, he undoubtedly referred to the severe inflammatory processes involving the cellular tissue of the floor of the mouth and glands, particularly the sub-maxillary. Since he reported his cases and described that condition nearly all of the affections characterized by brawny swelling, hardness and evidence of inflammation involving this area of the neck and mouth, and accompanied by more or less severe constitutional symptoms, have been described as angina Ludovici. The most of these cases undoubtedly are secondary infections occurring in the acute specific fevers, particularly diphtheria and scarlatina. Cases have been described that occurred from traumatism of either the external or internal structures; it is also positive that quite a number develop idiopathically from infection of the glands through their ducts. Some of these anginas are so violent as to produce death from extension to the deeper structures of the neck, acute edema of the glottis and larynx, septic pneumonia or general septicemia. The severe types are undoubtedly examples of streptococcic infection. It is possible that the varieties that resolve without suppuration are milder infections. The diphtheria bacillus has been demonstrated in the pus of some of the violent suppurative idiopathic cases, but it is quite certain that their virulence depended upon the accompanying streptococcic infection.

The following case of angina Ludovici, in a child of two weeks, from infection of the frenum of the tongue, due to the act of an ignorant midwife in severing that little fold of mucous membrane with an old dirty brass safety-pin, is a unique example of the traumatic origin of the disease.

L. B., female, white infant, aged 3 weeks, is the first child of a healthy mother and an alcoholic father. The infant from birth has been delicate and has suffered from stomach derangements due to injudicious feeding. When I was called to see the child I found on the right side of the neck a large brawny swelling extending into the floor of the mouth, evidently involving the cellular tissue, the sublingual and submaxillary lymph nodes. The latter was much swollen and could be mapped out very distinctly. The tumefaction was red and evidently suppuration had taken place, since fluctuation could be demonstrated at two points. The mother called my attention to a dirty gray, irritated looking ulcer occupying the position of the frenum and told me that the midwife who had presided at the *accouchment* had said that the child was tongue tied, and in the presence of a younger sister of the mother had pierced the frenum with a dirty brass safety-pin and torn it out. This had undoubtedly resulted in an infection which had been carried to the cellular tissues of the right side of the neck and involved the glands. Free incision evacuated the pus, and notwithstanding the precarious condition of the little patient, it rallied and made a good recovery. The case was also seen by Dr. F. Y. Allen of this city. I had previously heard of this barbarous method of "loosening the tongue" as midwives call it, by using a pin or needle, but this is the first time that I have known of its producing any bad effects. It is also the first case of angina *Ludovici* that I have personally observed which was due to traumatism, with the exception of 2 cases of infection of the same structures consequent to infection through the mouth from traumatism incident to the tearing of the frenum during the paroxysms of whooping-cough, with subsequent infection and ulceration. These 2 cases will, however, be made the subject of another report.

Antistreptococcic Serum in Scarlet Fever.—Baginsky (*Berl. Klin. Wochenschr.*, December 8, 1902) examined the throats of 701 children and found streptococci in 696. Streptococci were found at autopsy in the organs of 100 bodies of scarlet fever patients. Hence he concluded that scarlet fever is caused by the streptococcus. Four cases are reported in which the patients were treated with the new Aronson antistreptococcic serum. The patients improved and finally recovered. Baginsky employed 20 cc. injections two or three times during the course of the disease. He considers this new serum a success, and although its action is slow, yet its effect is of long duration.—*American Medicine*.

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THE DIAGNOSIS OF SCARLET FEVER.

The diagnosis of the acute infectious diseases is one of the most difficult problems with which the pediatrician is regularly called upon to deal. The advances of recent years have greatly simplified certain parts of the problem. The laboratory tests have rendered prompt and accurate diagnosis of diphtheria possible. The elucidation of the frequency and importance of the buccal eruptions of measles by Filatow, Koplik, and others has greatly simplified the question of diagnosis with relation to that particular affection. It is apparent that these aids to the diagnosis of diphtheria and measles indirectly are of great assistance in the diagnosis of scarlet fever, as they render possible a wider process of exclusion than was formerly applicable. Nevertheless the pediatrician, be he general practitioner or specialist, frequently finds

himself face to face with a problem in the diagnosis of scarlet fever which baffles his skill, both in observation and deduction. The difficult cases are more often not the severe but the mild ones. In the severe cases the character of the onset, marked as it is by the complex of fever, headache, sore throat, and projectile vomiting, the appearance of the throat and the tongue, and finally the eruption usually render diagnosis easy.

The milder cases in which the onset is insidious, the fever slight, the appearances of the throat and skin indefinite and unsatisfactory give much more difficulty and compel us to wait weeks for the appearance of some of the characteristic sequels before reaching a positive diagnosis. The fact that many of these cases are overlooked and no attention paid to the children until the onset of some serious complication is familiar to all. Within a few months we have known of the occurrence of several cases of acute nephritis in a ward of a large institution for the care of children, in which ward several cases of scarlet fever had previously occurred, those in charge of the ward having no knowledge of previous serious illness in the nephritic cases. All these well-known facts make clear how important and valuable it would be to have at our command some further means of diagnosis of this exanthem. In this relation we have read and followed with interest the repeated announcement that a laboratory method of diagnosis of scarlet fever had been devised in the laboratory of the Chicago Board of Health, a method quite as accurate and as easily applicable as that in common use for the diagnosis of diphtheria. According to the reports the diagnosis is based upon the recognition of a certain variety of streptococci in the throats of the patients. The close association between streptococci and scarlet fever has long been known. The investigations of Klein, Kurth, Slawyk, Baginsky, Sommerfeld, and others as has recently been pointed out by Hektoen (*Journal of the American Medical Association*, March 14, 1903) give considerable ground for the belief that scarlet fever is a streptococcus disease. As is well known this belief is so strongly held by some as to have led to the use of antistreptococcus serum in the treatment of scarlet fever. The re-

sults of that treatment are still *sub judice*. The general trend of these investigations and studies has, however, been in favor of the specific relation of streptococci and scarlet fever. We have, therefore, been disposed to view with favor the report that a method had been discovered by which cultures from the throats of patients might be made of service in diagnosis. Some years have now elapsed since Class, of Chicago, published the details of the method by which he claims to be able to determine the diagnosis of scarlet fever by the results of throat cultures.

According to recent reports (*Bulletin of the Chicago Board of Health*, October 25, and December 13, 1902) the method has been in successful use for several years in Chicago. Class' statements have, however, failed of confirmation elsewhere and bacteriologists, as a rule, regard as unwarranted the claim that scarlet fever can be differentiated by the method in question.

It is well established that streptococci are found in the throat in a variety of conditions other than scarlet fever, and bacteriologists have, so far as known, found no satisfactory method of discriminating the several varieties from one another. Aronson's recent work (*Berlin Klin. Wochenschr*, October 27, 1902) would lead to the conclusion that streptococci found in cases of scarlet fever, diphtheria, erysipelas, and acute rheumatic fever are practically identical; and, although Moser (*Jahrbuch für Kinderheilk.* Bd. LVII) expresses a contrary opinion, the evidence of differentiation is certainly far from conclusive. We have, therefore, good grounds for doubting the reliability of Class' method. If it has proven of value, it is highly desirable that the Chicago health officers should so impress that fact and should so far clear away the obscurities at present surrounding the method, that it should become generally serviceable.

Meanwhile we are compelled to rely upon clinical observations for diagnosis in indefinite cases. So long as this is the case, experience plainly teaches the advisability of insisting upon the quarantine and proper care of doubtful cases. Only in this way can serious dangers both to the patient himself and to others be avoided.

Bibliography.

Traité Pratique de Chirurgie Orthopedique par le Docteur P. Redard. Pp. 1052. Illustrated. Paris: Octav Doin. 1903. Price, 5*f*.

The second edition of Redard's well-known book is a bulky volume of 1,052 pages illustrated by 775 figures. The arrangement is like that of the previous edition, beginning with eighteen pages of history and ending with eighty-five pages of references to the literature.

The author's conception of the field of orthopedic surgery is still of one limited to the treatment of actual deformity, although the most noticeable advance during the ten years, that separate the two editions, has been toward the prevention of deformity by the early recognition and treatment of its causes. From this standpoint a treatise in which no mention is made of diseases of joints which almost inevitably lead to deformity should hardly claim the title of practical.

Another notable change during the past ten years has been toward the rapid and thorough correction of deformity, if necessary by operative means, braces being used as retentive rather than corrective appliances. This change has greatly simplified and extended the practice of orthopedic surgery. Yet in this book one finds all the figures of apparatus that appeared in the first edition, many of which are of no interest other than from the historical standpoint.

In a practical treatise one would expect to find a simple exposition of a particular disability and the method of treatment best in the author's judgment, rather than an account of various and conflicting theories of etiology and of the forms of treatment that have been employed or recommended by various writers.

In fact the book with almost a thousand pages of text with the many references to the literature of the past should be recommended rather as a book of reference for the specialist than as a guide to the general practitioner.

Lea's Series of Medical Epitomes. Manton's Obstetrics. A Manual of Obstetrics for Students and Practitioners. By **W. P. Manton, M.D.** Pp. 265. Eighty-two illustrations. Philadelphia and New York: Lea Brothers & Co. 1903. Price, \$1.00.

A manual designed for the use of "students and practitioners" should be up-to-date, accurate, concise and at the same time it should cover the essentials of the subject under consideration. This manual fills most of these requirements. The 265 pages contain a surprising amount of information. It is quite accurate as a whole and the text has lost little of clearness through the necessary condensation. The plan of having the questions at the end of the chapters instead of interpolated in the text is distinctly commendable.

One cannot help regretting that a work designed for the use of students should use the antiquated English measurements rather than the metric system. There is no excuse for Fig. 38 being upside down.

The last two chapters covering ten pages are devoted to the care of the child. Of these ten pages, three and one-half are taken up with artificial feeding, and a description of the materna glass for modifying milk, with formulæ suitable to the different ages up to one year. Some of this space might have been better employed in calling attention to the great danger of septic invasion through the umbilical stump and the proper method of guarding against it. A line and a half is too little to give to such an important subject even in a manual.

Reynolds' and Newell's Practical Obstetrics. A Manual of Obstetrics for Students and Physicians, by **Edward Reynolds, M.D.,** and **Franklin S. Newell, M.D.** Pp. 531. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1902. Price, \$3.75.

It is a pleasure to read a book which has a right to its title as a manual. There are no long lists of references which the student never has time to look up, and the reader is impressed with the fact that the book is the outcome of intelligent observation at the bedside. The book takes a comprehensive view of the whole field of obstetrics, nothing essential to the student being omitted. The sentences are well rounded, the style clear and concise, and the subject matter well arranged.

The chapters devoted to the care of the infant are especially good. The authors may perhaps be criticised for not insisting more strongly on the necessity for *absolute* asepsis in the dressing of the funis, "the popular practice of browning the cloth in the oven" not being sufficient "as an attempt at sterilization." The material with which the cord is dressed should be sterile. But, at any rate, the authors do not recommend the use of powders, which serve no useful purpose as a dressing for the cord. The tight-fitting abdominal binder for the infant is very properly condemned as raising intraabdominal pressure, thereby tending to produce the hernia it is supposed to prevent.

The authors emphasize the necessity for extreme care in the management of all premature children, and also the obligation resting upon the accoucheur to try to save every infant that can be made to breathe no matter what the period of gestation. The preservation of body heat, the avoidance of fatigue and proper feeding are the main points in the care. Gavage is advised for very weak infants who are oftentimes fatigued by the mere effort of swallowing.

The book is well printed with large type on good paper, and is handsomely bound. It is an excellent example of a most praiseworthy tendency in modern medical publication. Unfortunately, the plates are by no means up to the otherwise high standard of the book.

Creosotal in Croup.—The good results obtained with creosotal in diseases of the respiratory organs have tempted L. Lasansky (*Deutsch. med. Zeitsch.*, 1902, No. 91) to try this drug in croup, with pronounced success. In one case a complicating pneumonia was checked at its onset and a favorable change in the croup itself brought about overnight. Two similar cases also improved rapidly, while some of those treated with serum died. The author now prescribes creosotal in pseudocroup, measles and pertussis, and is well satisfied with the results. At first a dose sufficiently large to cause the characteristic odor about the breath and perspiration must be used; when the fever falls, smaller doses are employed for some time to prevent a recurrence. As vehicle, the old-fashioned infusion of ipecac with anisated ammonia is excellent.—*Medical News*.

Society Reports.

THE SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.—LONDON.

Meeting of February 20, 1903.

DR. EDMUND CAUTLEY, CHAIRMAN.

MR. H. J. CURTIS showed a specimen of a

CONGENITAL PERIOSTEAL SARCOMA

which apparently sprang from the acromion process of the left scapula of a boy from whom it had been successfully removed at the age of five and a half months. At birth it was the size of a small hen's egg. It was a mixed spindle and round celled growth.

DR. G. A. SUTHERLAND showed a

CHILD AGED FIVE YEARS WITH MARKED ATAXY

which had been present from the time he commenced to walk. He considered that possibly the condition might be due to a congenital cerebellar lesion. The superficial and deep reflexes were normal. There were no changes in the fundus oculi or paralysis of the ocular muscles.

DR. FLETCHER BEACH considered that since the labor had been a difficult one the possibility of a cerebellar hemorrhage could not be excluded.

DR. JAMES TAYLOR, although he agreed in some respects with Dr. Beach, nevertheless considered it possible that cases similar to those described by Marie, which manifest themselves later on in life, might occasionally occur in children at this early age.

DR. JAMES TAYLOR showed a

CASE OF WELL MARKED ACHONDROPLASIA

in a child of eight years. She was the seventh child—the others being healthy. She presented a characteristic deformity of the head; the humeri and femora were remarkably short, and trident-

like hands were present. Her intelligence was not defective. As is frequently the case, her weight was increased for her size.

THE CHAIRMAN thought the condition should be kept distinct from fetal rickets, and remarked that it had been suggested the condition might be due to osteomyelitis.

DR. TAYLOR, in reply, referred to a similar disease in some animals.

DR. A. MORRISON showed a case of

RAYNAUD'S DISEASE IN A BOY EIGHT YEARS OLD

which first manifested itself at the age of four and a half years. He did not suffer from hemoglobinuria and there was no evidence of congenital syphilis. Some of the attacks, as in the present case, were attended by the presence of blood-filled bullæ. Examinations of the patient's blood showed nothing abnormal.

DR. BEACH mentioned a case in which a successful result had been obtained by the use of Esmarch's bandage.

MR. GEORGE PERNET called attention to the fact that scleroderma and sclerodactylia might follow Raynaud's disease.

DR. THEODORE FISHER mentioned a case in which a condition similar to that of Raynaud's disease appeared in one hand as a sequence to a blow. He thought a strong peripheral stimulus might induce central nervous disturbance.

DR. LEONARD GUTHRIE thought the child syphilitic. He was also of the opinion that paroxysmal hemoglobinuria and Raynaud's disease were syphilitic manifestations.

DR. TAYLOR could not accept Dr. Guthrie's dictum that hemoglobinuria and Raynaud's disease were necessarily syphilitic.

THE CHAIRMAN agreed with Dr. Taylor, but referred to a case of symmetrical gangrene which quickly responded to anti-syphilitic treatment.

DR. LEONARD GUTHRIE showed a

SLIGHTLY RICKETY INFANT AGED TWO YEARS

whose ligaments were unduly lax and whose muscular system was wanting in tone. He could not make up his mind whether it was in the nature of rickets or of a congenital defect or want of development.

DR. SUTHERLAND considered it a case of rickets in which the stress had fallen upon the ligaments and muscles rather than any special congenital defect.

DR. CAUTLEY suggested that the condition was one of mal-development rather than rickets.

DR. GEORGE CARPENTER read a paper on

FOUR CASES OF HEART DISEASE

two of which clinically could have been mistaken for mitral valvular disease. In one a presystolic murmur was present suggesting mitral stenosis. In three of these cases after death the valves and pericardium proved healthy but the hearts were hypertrophied and dilated and disease of the myocardium was present. In the fourth case one of heart failure following diphtheria in which a mitral murmur was present associated with a pulsating liver, complete and rapid recovery took place with disappearance of the murmur.

DR. A. E. SANSOM commented upon Dr. Carpenter's cases. He thought the subject of myocarditis required further investigations and that clinically at present it is almost impossible to diagnose such affections of the heart muscle seeing that not only mitral systolic bruits but presystolic murmurs also were present in such cases. Dr. Fisher expressed his interest in Dr. Carpenter's observations and referred to his own pathological experience of complicated myocarditis. He also commented upon the presence of presystolic murmurs in cases in which there was neither mitral stenosis nor aortic valvular disease.

Scarlatiniform Serum Eruptions During the Course of Diphtheria.—Leiner (*Wien. Klin. Wochenschr.*, October 23, 1902) reports a number of these cases, all of which turned out to be true scarlet fever. Of 297 diphtheria patients, 22 showed this exanthem. They all occurred within five days of the serum injection, were followed by typical desquamation; a number of them had glomerulonephritis as a sequel. The eruption was contagious to other children; the tenacity of the contagium was great, and was not destroyed in every case by formalin disinfection. When transferred to the scarlet fever department such children never developed scarlet fever. All these points make the author certain that he did not have to do with scarlatiniform eruptions, the result of a serum injection, but with true scarlet fever.—*American Medicine.*

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting of Tuesday, March 10, 1903.

DR. D. J. MILTON MILLER, CHAIRMAN.

The Chairman presented a patient with long-standing enlargement of the cervical and mediastinal lymph nodes, and enlargement of the liver and spleen (Hodgkin's disease). The patient, a boy of fourteen, had had scarlatina when sixteen months old, but no other affection that could have any bearing upon his present condition. The glandular enlargement began at seven years (1896), after a "cold," and soon attained great size, occupying the left side of the face and all the triangles (left) of the neck. The lymph nodes never suppurated. They were removed in 1899 and, because of recurrence, again in 1900 and 1901. At this time, one of the removed lymph nodes the only one that microscopically appeared tuberculous, was found to show "tubercle areas of cheesy degeneration, and giant cells."

Until 1902, only the left lymph nodes had been affected. At this date the enlargement returned on the left side and, for the first time, appeared on the right side also. The patient was then submitted to a fourth operation by Dr. G. G. Davis, all the affected lymph nodes on the left side being removed. One of the extirpated lymph nodes showed "marked proliferation of connective tissue and great increase of cellular elements; no giant cells; no evidences of tuberculosis."

The patient was then transferred to Dr. Miller, who desired to try the tuberculin test; but the preparations for this alarmed the patient, and he left the hospital. Before he did so, however, a careful examination revealed, in addition to the cervical enlargement, marked evidences of a similar implication of the lymph nodes of the posterior mediastinum, not only by physical signs, but also by the Röntgen rays. There was also a large bunch of lymph nodes in the throat, pushing forward the uvula and half filling the pharyngeal cavity. The vocal cords were normal. The spleen extended two fingers' breadths, and the liver one finger's breadth below the costal border. The superficial abdominal veins were enlarged, but no mass could be discovered in the peritoneal cavity. Slight enlargement of the axillary and inguinal

lymph nodes existed, but not more than is often observed in healthy persons. The urine was normal; and the temperature during the boy's whole stay in the hospital had never been above normal—usually from 97° to 98°. A blood-examination showed: red blood cells, 4,104,000; white blood cells, 8,000; hemoglobin, 69 per cent. The differential count showed: polymorphonuclears, 70.6 per cent.; large mononuclears, 24.8 per cent.; small mononuclears, 2.4 per cent.; transitional forms, 8.2 per cent.—in a word, a moderate anemia without any definite characteristics.

DR. MILLER believed the case to be one of lymphatic tuberculosis: first, because of the tuberculous lymph node that had at one time been found; secondly, because of its long duration (seven years, without impairment of the general health beyond slight anemia; thirdly, on account of the patient's age, as Hodgkin's disease is not an affection of childhood. He regretted that the tuberculin test could not have been tried; but he said that this would not have been conclusive, as only inoculation could have settled the question. The case was probably an instance of the slowly progressing form of lymph node tuberculosis, in which caseation, softening, etc., are unusual. The fibrous condition of one of the glands also favored this view. The patient presented the physical signs of Hodgkin's disease, but not the general symptoms. It was true that there was strong evidence that many cases of Hodgkin's disease were directly referable to tuberculosis; *i.e.*, that the disease was a tubercular adenitis, without other tubercular disease, a view held by Sternberg, Musser, and Sailer. That this was true of all cases, was doubtful. Dr. Miller was of the opinion that under the term Hodgkin's disease we had a variety of pathological conditions but that many of the cases were tuberculous in origin.

Whatever its etiology, Hodgkin's disease presented a definite clinical picture: enlarged lymph nodes, spleen, and liver; progressive emaciation; and a more or less rapidly fatal issue. In Gowers' 50 fatal cases, only one had a duration of five years. This patient, apart from the glandular and visceral enlargement, gave a totally different picture:—He was in good health, although the condition had existed seven years. The speaker, therefore, did not think that we should classify this boy's affection under the head of Hodgkin's disease, although that disease might in every case be but a form of lymphatic tuberculosis. Hodgkin had a definite symptom complex in mind when he described the disease that goes by his name, although he knew but little of its etiology.

DR. EDSALL, in discussion, said that Sternberg seemed to be rather generally credited with the view that all cases of pseudo-leukemia are actually tuberculosis. As a matter of fact, however, that author, in a discussion in the Vienna Medical Society a year ago, insisted upon his belief that, as a rule, chronic tuberculosis of the lymphatic nodes might be distinguished from true pseudo-leukemia. Dr. Edsall asked particularly about the temperature in Dr. Miller's case, as Sternberg had referred especially to abnormalities in the temperature and to lesions of the mucous membranes as being strongly suggestive of tuberculosis.

DR. MILLER, in reply to Dr. Edsall, said that the boy's temperature had had a constant tendency to be subnormal. He agreed that the tuberculous form of chronic glandular enlargement is a variety that is distinct from true Hodgkin's disease. He did not coincide in the view that had recently been expressed by a number of authors, for instance, Musser and Sailer, to the effect that Hodgkin's disease is always tuberculous. He believed, also, that the tuberculous variety of chronic glandular enlargement might often be definitely diagnosed as such.

The point of chief interest to Dr. Miller in this case was its relation to Hodgkin's original description of the disease that goes by his name. This description constituted a very distinct clinical picture. The conditions in this boy materially differed from this picture, chiefly in the fact that the disease had been present for seven years; and that, although it had caused pronounced enlargement of the cervical lymph nodes, had advanced into the mediastinal lymph nodes, and was associated with enlargement of the spleen and liver, yet the patient's general health continued to be good. The affection described by Hodgkin was a fatal one, most cases lasting but a few years. Gowers had found only 1 case that lived as long as five years.

DR. GEORGE W. MORRIS showed a boy, thirteen years old, with multiple ossifying periostitis. His family history was negative. He had had the usual diseases of childhood. At the age of nine months, his mother noticed small lumps on the child's ribs. About one year later, small, hard growths began to appear on various parts of the osseous system. These had steadily increased in size of late, with greater rapidity than formerly. At present, hard, stalactiform excrescences were to be seen and felt on both tibiæ and radii, near the right trochanter, on the scapulæ, etc. They varied in length from 2 to 20 mm.; were firmly attached

to the bones : occurred, as a rule, near the epiphyseal junction ; and were shown to be of bony structure by the x-ray. They caused no pain, except by pressure on the overlying skin, and did not affect the joints, save by restricting motion. There was no evidence of rachitis, and a general physical examination failed to disclose any abnormality of the thoracic or abdominal viscera. During the last five years, the boy's physical development had been stationary ; and lately he had had to desist from active games, owing to encroachment of the bony growths upon the joints. Examination of the urine revealed nothing of pathological import. Potassium iodid had been administered without benefit.

DR. HAND said that a number of years ago he had seen a case quite similar to that of Dr. Norris', while working with Dr. Hopkins in the dispensary of the Pennsylvania Hospital. In that case there were a great many bony protuberances and marked dwarfing. The patient was a man, but he was not much taller than the boy exhibited by Dr. Norris. The occurrence of dwarfing in both these cases showed that the disorder that produced the bony change also, apparently, stunted the growth of the patient. The fact that the man seen by Dr. Hand had lived to maturity and was in good general health suggested that the prognosis of the condition as to life was good.

DR. JOPSON said that he had never seen a case like the one presented, although he had seen a number of cases with multiple exostoses, the differences between such cases and this being apparently principally one of degree. The fact that the bony deformities occurred chiefly at the epiphyseal junctions, that the long bones showed some bowing, and that the patient was dwarfed, and also the shape of the head and the beading of the ribs, strongly indicated, to Dr. Jopson's mind, that the patient was rachitic. We certainly knew very little about the cause of conditions of this kind, the only other possibility that was at all suggestive as an explanation being a displacement of the osteogenetic centres.

DR. ESHNER has recently seen, in Dr. John K. Mitchell's service at the Orthopedic Hospital, a girl that exhibited enlargement and distortion of many of the phalanges and some of the metacarpal bones of the hands, and of the lower extremities of the bones of the arms. The condition was thought to be due to rachitis. A sister of this patient was under treatment for epilepsy and mental deficiency ; and the possibility suggested itself that some hereditary defect or nutritive disturbance underlay the dis-

order in both instances, exhibiting itself in 1 case in a disturbance of the nutrition of the nervous system, and in the other in a disorder of bone-nutrition.

DR. J. P. CROZER GRIFFITH said that he felt compelled to differ with the opinion expressed, that the condition exhibited by the patient was in any way a form of rachitis. There were practically no evidences of rickets; and, on the other hand, said the speaker, all the members of the Society were familiar with very severe deformities of the bone occurring in advanced cases of rickets, but probably none have often, if ever, before seen just such a condition as this boy presented. If the condition were rachitis, surely severe cases of rickets should have more frequently shown something like this. In watching medical literature, Dr. Griffith has noticed quite a number of instances of multiple exostoses reported during the last few years. The conditions seem to have been similar, in many respects, to those of the patient presented. As far as he could remember, all the cases began in infancy.

He said, also, that the various forms of disease of the bone developing in infancy and childhood were of extreme interest. Some forms could be distinctly differentiated; for example, those of rickets and of syphilis. Others could not, and seemed almost to shade into each other in a peculiar manner. He thought that syphilis, too, could be excluded in this patient. Although exostoses might readily occur in a syphilitic periostitis, and although in one syphilitic case under his observation the condition of part of the body was very similar to that of the patient exhibited, yet the peculiar sickle-shaped tibiæ characteristic of the syphilitic disease, and very marked in Dr. Griffith's patient, were entirely absent in the patient shown.

DR. JUDSON said that the case reminded him of the condition termed hyperplastic fetal chondrodystrophy. The epiphyseal deformities, the disorder of bone-growth, and the shortening of the extremities were such as one saw in persons that had been the subjects of that affection. The mother had stated that this child was surpassed by his younger brother in height and general development, and that all her other children were much larger at the age of the boy now before the Society.

THE CHAIRMAN said that it seemed to him that the continued existence of the disorder at this boy's age indicated that it was not chondrodystrophy, as the majority of such cases died early. He

mentioned that the patient's calves looked unusually large, and asked Dr. Norris whether he thought there was any evidence of the presence of pseudohypertrophic muscular palsy.

DR. NORRIS said he wished to add to what he had already said that the boy had always been very intelligent, and quite as active muscularly as other children of his age. When he first saw the case, Dr. Norris had at once noticed that the calves were much enlarged, and had thought of pseudohypertrophic muscular palsy; but there was no evidence whatever of the presence of that condition. He then came to the conclusion that the enlargement of the calves had probably been due to the bony growths on the tibiæ, deep under the muscles. He had in his possession skiagraphs of the boy that showed that the growths on the bone were themselves bony, and not cartilaginous. The shadows produced by them were quite as dense as those caused by the bone. Dr. Norris said that he had called the condition multiple ossifying periostitis, because he did not know what other name to give it. He had adopted this term on account of having seen in Stengel's Pathology a description of a similar condition under that name.

DR. L. H. BERND reported a case of peri- and endocarditis in a child that had had repeated attacks of rheumatism. After the second attack, a mitral systolic murmur developed. There was also marked gastric disturbance, and a very striking tachycardia appeared. With the tachycardia, the murmur disappeared, because of the weakness and rapidity of the heart's action. Friction sounds developed. The respirations ranged from 44 to above 100. Free stimulation was given the child hypodermically, including strychnia, digitalis, and camphorated oil. Inhalations of oxygen were also used; and it was apparently only this free stimulation that had carried the child through the attack. He left the hospital in a satisfactory condition.

DR. W. G. B. HARLAND read a paper on adenoids as a cause of enlarged tonsils and other diseases. He said that enlargements of the tonsils depend upon a constitutional tendency toward lymphatic enlargements, and upon irritation and infection. The latter are chiefly due to the mouth-breathing produced by adenoids. Transient forms of croup in children are also due to laryngeal irritation caused by the mouth-breathing occasioned by the presence of adenoids. The more serious forms of croup are produced, in part, by the pressure of enlarged cervical lymph nodes upon the recurrent nerves, these nodes being infected from throat-

inflammation, the result of adenoids. As pointed out by Packard and others, the function of the normal tonsil is to protect the organism from infection. This it is able to do, unless, through mouth-breathing, the amount of infection be increased. Once infected, the tonsils become foci of infection. The lymphatics and the cervical lymph nodes are affected, and in this way bacteria and toxins reach the organs and the blood. The poisons remain latent until some exposure lowers the vitality of the person. These remote changes caused by adenoids may exist long after the adenoids have disappeared.

It may be regarded as a rule that adenoids in young children should be removed: (a) if the tonsils are enlarged; (b) if the child has attacks of croup; (c) if it has frequent colds, sore-throat or other throat infection, or nasal obstruction. One can thus prevent immediate drains upon the vitality, and also serious infection later in life. In every doubtful case, the operation should be performed.

DR. EDSALL said that the report of Dr. Bernd's case followed by Dr. Harland's paper had led him to speak of a condition not mentioned by Dr. Harland, in which disease of the pharyngeal and nasopharyngeal lymphoid tissue is certainly of importance, viz.; in rheumatism; also in endocarditis definitely associated with rheumatism, and sometimes when not so associated. It has been very clearly indicated by the work of Menzer and Meyer, as well as by that of others, that this lymphoid tissue is very frequently the point of infection in rheumatism, in rheumatic endocarditis, and sometimes in endocarditis that is not definitely associated with rheumatism. From a clinical standpoint, this question has been very clearly and carefully discussed by Dr. Frederick Packard. Dr. Edsall believes that this work is of importance in connection with treatment; and thinks that in cases exhibiting a tendency to recurrent rheumatism or to recurrent endocarditis, and even when there has been but one attack of rheumatism or of endocarditis, there should be persistent and careful local treatment of disorders of the tonsils or of the nasopharynx. This treatment should be operative, if necessary; and such patients should habitually use mild antiseptic local applications, especially at the time of year when, because of atmospheric conditions, rheumatism is likely to reappear. Treatment in such cases should be carried out with particular rigidity and persistence, in order to attempt to prevent further general infection.

DR. WALTER ROBERTS said that very small adenoids undoubtedly produced many conditions that are not commonly recognized as being due to these growths, and that removal of the adenoids would often cure. The conditions that he had most frequently found to be due to adenoid growths were acute catarrhal states of the Eustachian tube and of the middle ear, and he said that catarrhal deafness might, in its early stages, often be entirely relieved by the removal of adenoids. He also believed that rheumatic cases might frequently be improved by persistently treating the throat. He was not prepared to say that adenoids should always be removed as soon as discovered; but he did believe that they should often be removed, even though they are not causing the appearance of typical, old-fashioned adenoid disease. In older children, the growths might be readily removed by using only cocaine as an anesthetic, if the sharp curette were used in performing the operation. When this instrument was employed, there was very little pain with cocaine anesthesia; but with forceps, cocaine anesthesia was always painful.

DR. BERND said that in making inspections of school-children he had often noticed that mouth-breathers were generally backward in their studies. In some instances he had persuaded the parents to have the children's throats operated upon; and in these cases mental improvement had almost always followed.

THE CHAIRMAN asked Dr. Harland, first, how early adenoids should be removed; and, secondly, whether it is harmful to remove them a number of times. He particularly wished to know whether one should remove adenoids as soon as discovered, in order to avoid the occurrence of symptoms; or whether one should wait for the occurrence of symptoms due to the growths before interfering. His own experience has been that, if removed very early, the adenoids often recurred; and that, unless removed again at least once, they ultimately produced typical adenoid symptoms. The very early operation, therefore, seemed to necessitate a second; and Dr. Miller wondered whether the operation itself had any tendency to cause the adenoids to recur.

DR. WALTER ROBERTS said that he wished to add that eye-conditions are sometimes very unfavorably influenced by the presence of adenoids. He mentioned the case of a child with ulcer of the cornea, in which careful and varied treatment had been entirely ineffectual. Small adenoids were present, but these had not been thought to have any connection with the eye-disease.

They were removed, however, and the ulcer of the cornea immediately showed improvement, and disappeared with astonishing rapidity.

DR. HARLAND, in reply, said that the point that he had most wished to insist upon in his paper was that if one waits until systemic infection of any kind has occurred, the proper time for operation had already passed. In such cases, the lymph nodes nearby were already infected, and often remained so; and local treatment would no longer control this infection. The proper method was to treat these cases locally as soon as the disease was discovered to be producing symptoms, and not to wait until more serious trouble had ensued. If there were any mouth-breathing, Dr. Harland believed that one should operate at once; and he had always found the adenoids to be much larger than had been expected previously to operating.

As to the question of backward children, he believed that those with adenoids were often backward in their studies—not so much because the growths had produced any mental change, as because they had produced deafness. The age that he considered most suitable for operation was from three to four years. Ordinarily, the adenoids caused no symptoms before that time, and, therefore, did no harm. After this period, however, the child was likely to have frequent colds, earache, or other symptoms referable to the growths; and the occurrence of such symptoms indicated removal. If a child's tonsils were removed, any adenoids present should be removed at the same time. Dr. Harland did not believe that repeated removal would often be necessary, if the first operation was thoroughly done. If there should be recurrence, however, he thought that there would be no harm in repeating the operation; but that only good would be derived from it.

DR. J. C. GITTINGS reported a case of edema of the glottis, with a note by Dr. John H. Jopson. The child, five years of age and the subject of Pott's disease, had a mild attack of scarlatina, followed by bilateral suppurating cervical adenitis. Fifteen days after the beginning of the attack, while the adenitis was still active, a slight laryngeal cough developed, followed by acute laryngeal obstruction. Three points that spoke against membranous laryngitis were noted: that there was a distinct snoring quality to the inspiration; that there was little cough; and that the voice was clear, although articulation was difficult. Dr. Jopson, in consultation, found the child semicomatose, with marked respiratory

obstruction. Digital examination showed edema of the epiglottis, the arytenoids, and the opening of the larynx, extending to the left half arch. No membrane could be seen. Intubation was very difficult, and the only relief that this afforded was by the expectoration through the tube of the mucopurulent accumulation from the trachea. The edematous tissue occluded the opening of the tube, as was to be expected in such cases; and the tube was soon withdrawn. The need for tracheotomy was deemed imminent, but permission for this was refused. The child's condition slowly improved under a croup tent, with hot poultices applied to the neck. On the following day, the dyspnea was less; and it gradually disappeared.

The nosology of edematous affections of the larynx, by different authorities, included an acute phlegmonous inflammation with secondary edema; and a simple or symptomatic edema. The first was due to adjacent phlegmonous inflammation, such as quinsy; or to general infections, such as variola. The second was caused by some morbid change in the kidneys, heart, or liver; by obstruction to the circulation; by vasomotor paresis; or by any general or local condition that tended to produce dropsical effusion. All authorities agreed as to the rarity of edema of the glottis, from whatever cause. Dundas Grant had reported a series of 1,008 cases of scarlatina, in 69 of which adenitis occurred, but without edema of the glottis. Clarence C. Rice had reported 41 cases of edema of the glottis, in 14 of which the cause was a simple acute catarrhal process. Jacob D. Arnold quoted Von Hoffmann's figures of 32 cases of edema glottidis in 6,062 autopsies at the Berlin Charité. Most of these were due to chronic renal or cardiac disease. Such cases are not very likely to find their way into literature; hence, the difference between these and Rice's figures. In the case reported by Dr. Gittings, the attack was due to infection and contiguous inflammation from the adenitis; although the child's "strumous" and anemic condition was a strong predisposing factor.

Dr. Jopson said that Dr. Gittings had referred to the rarity of edema of the glottis in scarlet fever. Several authors refer to this fact as being in marked contrast with the conditions in measles. Dr. Jopson's experience had been entirely in consonance with this. He has operated upon about 75 cases of laryngeal stenosis, 9 of which were associated with or consecutive to measles. Dr. Gittings' case was the only one operated upon by

Dr. Jopson that was definitely due to scarlet fever. In this case it was practically unquestionable that diphtheria was absent, and Dr. Jopson believes that laryngeal trouble was a secondary result of the scarlatinous angina and adenitis.

DR. HARLAND mentioned a remedy that he had seen used twelve years previously, in a case of edema of the glottis in which other remedies had been without avail, and in which those in attendance were prepared to perform tracheotomy at once. The case occurred in the Germantown Hospital, and Dr. Muller suggested the use of Monsell's solution in the steam-atomizer. The patient had been for a long time in dreadful distress; but within three minutes after employing Monsell's solution she was breathing quietly, and she had no further trouble. The speaker also referred to the fact that pressure upon the laryngeal nerves caused first closure of the cords and then paralytic relaxation. He suggested that in this case the adenoids of the neck might have been a factor in producing laryngeal stenosis, acting by pressure upon the nerves.

THE CHAIRMAN mentioned a case of laryngeal stenosis in a patient with purpura. In that case there was a purpuric eruption in the larynx, with tremendous edema. Adrenalin was used locally and internally without any effect, and the case ended fatally.

Tuberculous Lymph Glands — Extirpation the Proper Treatment. — Other treatment than extirpation of tuberculous lymph glands is considered by Parker (*Medical Press*, August 27, 1902), in common with a number of distinguished surgeons, as a trifling waste of time. He has performed over 300 operations of this character. He has carried extirpation to considerable lengths, and has performed prolonged and difficult operations, sometimes several in the same person. Some of these patients have been seriously enfeebled, but the operation restored their health and strength as well as eradicated the tuberculous disease. The treatment should be applied without any delay. It should be more readily undertaken in cases which have reached advanced stages.

Milton, of Cairo, has reported over a thousand operations of this kind, all of which confirm Parker's conclusions.—*Therapeutic Gazette*.

THE NEW YORK ACADEMY OF MEDICINE.—SECTION
ON ORTHOPEDIC SURGERY.

Stated Meeting of February 20, 1903.

DR. T. HALSTED MYERS, CHAIRMAN.

PRESENTATION OF PATIENTS.

DR. ELY presented a case of

CURED CONGENITAL DISLOCATION OF THE HIP,

that had been under treatment for the last two years. The child, five and a half years old, was operated on, April 28, 1901; she had the usual symptoms with an inch and three-quarters shortening, and the operation was very difficult. It took about two hours. The first plaster was on about six months; the next one for about three months. The last spica was removed in November, 1902, making about eighteen months in plaster of paris. She now had legs of the same length exactly, and could run and hop with either leg. Dr. Lorenz took the leg operated upon for the normal one.

DR. HOMER GIBNEY presented a case of

CURED HIP DISEASE,

which had been under treatment for the past two years. Within three weeks, the brace had been removed, and a plaster spica which extended to the knee applied. All the symptoms had subsided. The last examination showed that the flexion was almost normal, but to guard against any injury, when all acute symptoms had subsided and the child could flex and abduct the limb almost normally, a spica was employed. The next procedure would be to put on a high shoe, and then the child would be discharged as cured.

After the children had worn a splint for two or three years, sometimes they were sent away from the hospital and allowed to take the apparatus off at night and sleep without it. When the mother reported that the child had no pain and no discomfort the child was allowed to take off the brace by day. Of course there were slight shortening and a little reflex spasm in this case, but the latter was hardly noticeable.

DR. WHITMAN said that he had asked five patients with rheumatoid arthritis to come here tonight, and there were two more in the hospital. The first girl was now twenty-five years old; her right arm was helpless and perfectly stiff; she had a certain amount of stiffness in the left arm and stiffness in the shoulder. She was worse at one time than this little boy, the second case, who is now about the same as she was when her treatment was begun. This case showed the characteristic appearances, the thickening of the wrists and the inability to extend the fingers. He was interested to hear the mother say the child had had no treatment whatever except what she described as "exercise and nourishing food." The third case, a little girl, was brought to him about a year and a half ago, at the age of one year. She began to have then a painful condition of the knee. She was taken to the hospital and was treated at first for a tubercular disease of the knee. That treatment was apparently successful until attention was directed to the fact that the trouble had appeared in the other knee; then it came in the elbows, hands and wrists. The child was in very bad condition, when it had the measles, and, as sometimes happens, the contagious disease apparently cured her of the other trouble. She was almost well except for the shoulder, but then she gradually relapsed again. After a time she had electricity applied—the wave current, not the spark current. The immediate effect of this was very favorable. The pain disappeared and the disease was apparently checked. Now she had had no treatment for three months and the improvement, so far as pain was concerned, had continued. Of course, no one would think of calling this child well—but she was certainly a great deal better.

DR. TOWNSEND presented a case of

POTT'S DISEASE WITH ABSCESS AND PARAPLEGIA.

The little girl, seven years old, was brought to the Hospital for Ruptured and Crippled seven months ago. At that time a small kyphos had appeared and the mother was instructed to bring the child back for treatment; but she failed to return. When the child was again brought to the hospital paraplegia was complete, her respiration was very much increased and signs of tuberculosis, in addition to Pott's disease, had developed. It was stated to have followed a distinct attack of pneumonia, with a severe pain in the side and marked cough. The rapidity with which the disease had

progressed was interesting, and an abscess had formed in front of the spine. The abscess was probably outside the vertebral canal; it might press somewhat upon the lung. He would like to ask the opinion of the Section, what operative procedure, if any, they would advise in a case of this kind?

DR. SAYRE said that it would be wise to explore that abscess; it seemed to him to go around the spine.

DR. VIRGIL GIBNEY said that it looked to him like a mediastinal abscess.

DR. GOLDTHWAITE thought the safer procedure for the child would be to explore it. It seemed perfectly possible that it might communicate with the posterior mediastinum, and by getting rid of it the irritation that caused the child to cough would be relieved. Of course, the opening of the mediastinum was a good deal of an operation, but it seemed it would be possible.

DR. ELY said that if it were his case he would let it alone; it seemed to him it would be unwise to operate on it. The child seemed more comfortable when lying on its back.

DR. TOWNSEND said that the parent did not realize the gravity of the case. As matters were growing steadily worse, perhaps the mother would feel that their advice was proper and would carry it out; but these people could not be compelled to come into the hospital and they could not get the child under treatment.

DR. MYERS remarked that it was not proven in this case that the symptoms were due to abscess. Pain and reflex spasm might cause them. Unless the child had a marked temperature or leukocytosis, showing secondary infection, he would rather, for a time, put it in some protective apparatus. The mere drainage of the abscess would do very little good. It was pointing posteriorly and would open there spontaneously soon. Meanwhile the traumatism and pain of daily dressings were avoided and a brace could be more conveniently applied.

DR. GOLDTHWAITE said he had reported 4 cases of posterior mediastinal abscess. Three died suddenly in paroxysms of dyspnea. In 1 case he had operated on the patient during such a paroxysm and succeeded in draining the abscess. She was now wearing a brace. It seemed to him that that would be an indication, more than anything else, for the operation. The diagnosis

had to be made of the child's condition from the character of her breathing. Here there was a rapidly increasing abscess. It showed plainly in the back, and it probably came from in front of the spine.

DR. VIRGIL GIBNEY about two weeks ago had had a case of this kind. The child was in a jacket. It had a sinus in the neck which was discharging a little; the jacket had to be taken off one day and a swing substituted. An opening was made in one side. The child began to collapse very rapidly, and within a very short time it died. It went down quite suddenly, and the autopsy showed that there was a large mediastinal abscess that had broken into the vertebral canal and produced the collapse. The posterior mediastinal abscess was draining imperfectly, and that closed the canal, or nearly closed it.

DR. TOWNSEND had had 1 case in private practice where the patient died instantly. He held a postmortem and found it was a posterior mediastinal abscess. In this case he would follow the advice of Dr. Goldthwaite and others.

DR. SAYRE had had a similar case; the child looked out of the window, and said good-by to its father, and before the father had gone a block, the child was dead.

DR. ROYAL WHITMAN then read the paper of the evening,

"A REPORT OF FINAL RESULTS IN TWO CASES OF POLYARTHRITIS IN CHILDREN, OF THE TYPE FIRST DESCRIBED BY STILL."

Several photographs of the cases described in his paper were also submitted.

The cases were in children, aged respectively five and twelve years of age.

In each case the onset was gradual and the process was for a time confined to a knee joint, the symptoms of pain and stiffness being mistaken for tubercular disease. After a time practically all the joints became involved. There was accompanying extreme emaciation; general hyperplasia of the lymphatic glands and enlargement of the liver and spleen. Several joints were explored and the process was found to consist in a transformation of the synovial membrane into what resembled granulation tissue. This spread in a pannus growth over the margins of the articular cartilages, eroding and destroying them.

The younger patient recovered completely after an illness of

about two years. The elder died at the end of about three and a half years. In this case even the joints of the fingers and toes were involved. In both cases the spine remained free from disease.

In the case that came to autopsy the internal organs and even the mesenteric glands showed advanced amyloid change. The joints presented the same appearance as at operation. The cortical substance of the bone and the cartilage was extremely thin. The spongy tissue was dark red in color, but firm and regular in structure.

DR. GOLDTHWAITE said it gave him much satisfaction to have Dr. Whitman present this paper; it seemed that it opened up for consideration the large field of non-tubercular joint diseases, about which there was the most pathetic ignorance at the present time in the general profession, and the solution of which came back very largely upon the orthopedic surgeon, because such diseases could only be studied by men who had a chance to form definite clinical pictures and to study the pathology which a general practitioner missed, and the fact that men were becoming aroused to this was a matter of great satisfaction. The differentiation of the types of this disease, in the first place, and the etiology of these cases, in the second place, were problems which could not be solved at once, and no one man could solve them. It meant the work of a great many observers—it meant the pathologist, the chemist and the bacteriologist, working in their laboratories—so results were balanced and studied in proper proportions. It was perfectly apparent that there were distinct types of these diseases. There were four types, with definite clinical and pathological pictures. There were undoubtedly other types mixed up in these four, which we do not yet understand.

The two types which were perhaps the most striking at first were the types designated as rheumatoid arthritis and osteoarthritis.

The first was a disease which came on insidiously, took one or two joints at first, in the hand or in the foot, the process lasting sometimes many years until a person was badly crippled. It was a progressive disease which did not kill of itself, but crippled, and it was a type which filled the beds in almshouses. Primarily it began with a swelling of the joint structures—not “inflammation” as the pathologist uses the term. It was more the atrophic type of swelling. With the swelling there was almost always an

atrophy of the cartilage, which was followed by atrophy of the bone. Coincidentally with the process of healing in some of the joints after the stage of atrophy was past, there might be a fresh onset of the disease in another part of the body, as in tuberculosis. A large number of microscopic specimens showing the bone changes were exhibited. Surprisingly enough there was no secondary anemia as in all cases of tubercular diseases, nor the anemia of a septic process. The lymph nodes were not enlarged, nor the liver and spleen, apparently.

The next type was osteoarthritis. There was hypertrophy of the edges of the cartilage, with a marked atrophy of the central portion. Photographs showing a condition of hypertrophy from the start were exhibited. It was a disease which attacked a great many joints, but it was not a progressive disease, necessarily, which the so-called rheumatoid disease was.

Then there was another type which had been observed more or less frequently, recently. They were cases which puzzled one. We designated them for want of a better term, toxic—*toxic*—a group of cases which sometimes came from traceable causes and at others from no apparent cause. The X-ray pictures in these cases were different from those in the rheumatoid condition, and there was an enlargement of the glands—enlargement of the spleen and liver, which showed anemia, or sepsis of the joints—any number of joints might be involved. He had made a diagnosis of a case of toxic arthritis where the patient died. The autopsy showed the characteristic features of this disease, and it seemed to him that the condition described by Still came better under that class than any other. It was a condition which was not confined at all to childhood. The same type might occur in adults. One case he had observed in a very strong, robust child, who had a tooth filled. Following that the child ran down rapidly—developed joint symptoms, and today presented all the appearances described by Still. The knees were affected and also the neck. He had seen the same thing in other cases, starting in at one joint and then involving others, the process went on of the same type as was described as toxic arthritis.

The differentiation between that and rheumatoid was a matter of a good deal of importance and it was somewhat difficult. Dr. Whitman had reported one case which should be placed in that class. The cases might go on a long time. Many got well, and frequently without treatment. So, as a matter of prognosis, differentiation was important.

There was the other type—that is, pure gout, chronic gout. There is usually a pure deposit of urate of soda about the joints, as shown by chemical analysis. In these cases, however, there was not simply an atrophic condition, but a destruction of the bone, as could be shown in the X-ray photograph, in which one of the joints had almost entirely disappeared. He had a series of X-rays which would make the condition clearer. He also had plaster casts showing the typical swelling and appearance of the wrists and arms.

THE CHAIRMAN said Dr. Whitman and Dr. Goldthwaite had interested him immensely by their clear and practical presentation of this very important subject. It was to be regretted that lack of time prevented a consideration of the treatment of these cases, and the proper diet, a much confused subject.

DR. SAYRE had been very much interested in these papers. It was a subject of which he felt extremely ignorant, although he had been watching a number of these cases for several years, one since 1886. In one he excised the bone. The chief difficulty in a case, year before last, a small child, was the great neurotic tendency—paraplegic neuritis—and neurotic disturbances of the circulation; also the ecchymosis which was seen in certain nervous affections, in various parts of the body, which disappeared quite rapidly at times. The case was much relieved by the application of electricity. It seemed in several of these patients to be very largely a question of diet, in regard to the improvement of the condition of their joints. In what way the assimilation was defective he had not been able to determine. There was also very defective excretion. He had been unable to classify these cases, and had listened with great pleasure to Dr. Goldthwaite's discussion and Dr. Whitman's paper on the subject. In one case which he had had under observation for a while, the child was brought back a short time ago by its father, well with the exception of one joint. It surprised him greatly. He did not know why it got well.

DR. TOWNSEND said the first cases reported by Dr. Whitman interested him very much. He remembered some seven or eight years ago reading a monograph on a case of rheumatoid arthritis. The writer said he had found only 12 cases in several years. He was sure they saw that number every year at the Hospital for Ruptured and Crippled.

DR. WHITMAN was, of course, particularly interested in the cases he had presented. He would call particular attention first to the fact that the disease was accompanied by a destruction of the cartilage, and second that a stiffness of the spine was not always one of the early symptoms. These two patients went on to the end without any affection of the spine; some of Still's cases were cases of what we might call rheumatoid arthritis. Dr. Townsend spoke of a case he had six or seven years ago where the patient was now very much improved. It was really interesting to see how these cases of pure rheumatoid arthritis, with no treatment whatever, except the protection that the hospital affords, might be cured.

THE CHAIRMAN asked if Dr. Whitman would agree with Dr. Goldthwaite in classifying Still's cases under the heading toxic?

DR. WHITMAN said he was much interested in Dr. Goldthwaite's remarks on this subject; but he did not know whether he should class them on the toxic side or not. He should say, however, that in both of these cases the disease was confined to one joint. He was inclined to think that the symptoms were rather too slow in appearing because in the first case the patient had this affection for months before the general affection of the joints.

DR. GOLDTHWAITE said he did not mean to give the impression that in the so-called toxic type the joints became involved all at once. He meant in a comparatively few months, and new joints were not invaded. In severe cases all the joints might be involved; but he had seen cases where only one or two joints were affected. He had omitted entirely any reference to the treatment, because that was too much to undertake in a discussion of this kind; but in almost all these cases the degree of crippling could be lessened by careful treatment.

DR. BALSLEY presented his apparatus for taking casts of feet for flat-foot plates. A four-inch wide band of sheet steel or lead is bent to conform very loosely to the lateral outline of foot and ankle. A removable piece of board fits inside this. A four-inch roller bandage closes the outlet at the ankle. The foot is now placed in the box so formed, the external malleolus resting on the roller bandage supports the foot steadily while the plaster is poured around it and the casts taken in the usual way. As the board is removable, the apparatus can be used for either foot by simply turning it over, always keeping the board at the bottom.

THE NEW YORK ACADEMY OF MEDICINE.—SECTION
ON PEDIATRICS.

Stated Meeting, April 9, 1903.

HENRY HEIMAN, M.D., CHAIRMAN.

RESULTS OF OPERATION FOR INTUSSUSCEPTION.

DR. JOHN F. ERDMANN reported 3 cases of successful operation for intussusception, and exhibited two of the patients, his 22d and 23d cases. The first patient was a male infant, four months and three weeks old when operated upon three weeks ago. On March 20th the child was seized with abdominal pain and passed some bloody mucus. Dr. Erdmann saw him twenty-three hours later, and while the child was in good condition, and bloody mucus escaped on passing the finger into the rectum, palpation failed to detect a tumor. At the operation there was found a double intussusception, *i.e.*, an intussusception of the ileum within itself and an intussusception of the ileum within the colon. Contrary to the usual experience, the appendix was not included in the intussusception; nevertheless he removed it. The reduction of the ileocolic portion was easy, but that of the other very difficult. The second patient, six months old, was seen twenty-four hours after the first symptoms. Strangely enough, this infant lived in the same house and on the same floor as the first child. When the child cried a tumor was visible in the left side of the abdomen, which was distinctly movable. Blood was passed by rectum but no tumor was palpable there. In this case also the operation revealed a double intussusception, but the appendix was involved. The intussusception was reduced and the appendix was removed. The third case occurred in a child of five and a half years, who suffered with continuous abdominal pain, without fever or anything pointing to intussusception with the exception of some rigidity of the right side of the abdomen. This intussusception was also of the ileocolic variety. It was reduced and the appendix removed.

DR. H. LILIENTHAL commented on the fact that Dr. Erdmann had adhered to the right-sided abdominal incision even in the case in which a tumor was visible on the left side. While the general

rule was to cut over the site of the tumor, his own experience indicated that, in many cases at least, the incision through the right rectus would answer every purpose. He was of the opinion that where the intussusception was sufficiently severe to give rise to the usual symptoms the only proper treatment was surgical, for, while occasional recoveries had followed the use of hydrostatic pressure the latter method was in itself quite dangerous. Probably many cases of intussusception of such slight degree as not to give rise to recognizable symptoms occurred, and recovered spontaneously.

DR. ERDMAN said there was no difficulty whatever in reaching the whole circumference of the abdomen through the incision on the right side; it even allowed of the ready reduction of an intussusception down in the region of the sigmoid.

INVERSION IN THE TREATMENT OF ACUTE PULMONARY EDEMA IN YOUNG CHILDREN.

DR. THOMAS S. SOUTHWORTH presented this paper. (See ARCHIVES OF PEDIATRICS, May, page 353.)

DR. JOHN F. ERDMANN also exhibited an

APPENDIX CONTAINING NUMEROUS PIN WORMS.

He had removed it by operation from a child of five and a half years, who suddenly developed a temperature of 105° F. and a pulse of 140°. A second case of the same kind, though not containing quite so many worms, was met with about a week after operating on the first one.

DR. HENRY HEIMAN said that the specimen was of special interest because it was generally taught that the habitat of the pin worm was the rectum or descending colon. While ordinarily the diagnosis of pin worms was readily made by inspection, this was not always sufficient, and under such circumstances if the child gave symptoms of this condition, *e.g.*, itching of the anus, worse at night, the feces should be examined for the eggs.

DR. CHARLES A. ELSBERG presented a paper on

THE SURGICAL FEATURES OF PERFORATION OF THE INTESTINE IN TYPHOID FEVER IN CHILDREN

and reported a recent case at the Mount Sinai Hospital upon

which he had operated. The number of cases of typhoid perforation of the intestine reported as having been operated upon up to the present time was 289. Of this number 75, or 25.9 per cent. recovered. There were 25 patients less than fifteen years of age, and among these children there were 16 recoveries, or 64 per cent. In the case reported by Dr. Elsberg, there appeared two weeks after the operation a vaginal discharge, and on bacteriological examination this was found to afford a pure culture of the typhoid bacillus. The case was also worthy of note because it was the youngest operative case on record, the child being only six and a half years old. Regarding the frequency of typhoid perforation in children, reference was made to the fact that out of 284 cases of typhoid in children observed by Dr. J. Lovett Morse there was not one instance of intestinal perforation, whereas Dr. Reginald Fitz found seven instances of this complication in 192 cases of typhoid in children. Again, Holt had collected 1,028 cases of typhoid in children in 12 of which there was perforation. These statistics gave a total of 1,504 cases with 1.2 per cent. of perforation—not very different from the proportion found in adults, *i.e.*, 1 to 2.5 per cent. Dr. Elsberg said that at the Mount Sinai Hospital they had not found it possible to make a reasonably positive diagnosis in the “preperforative stage” as Cushing denominated that period when perforation was imminent. There were 25 cases considered in the paper. Of this number, 14 were between nine and twelve years of age, the youngest being six and a half years and the oldest fifteen years. Eighteen were males, six females, and in one the sex was not stated. It was difficult to account for this fact that 72 per cent. of all of the cases operated upon among children were males. A decided change in the facial expression was noted in 11 cases, but this change never occurred early, and usually not until other symptoms had led to the suspicion of perforation. The temperature curve was rarely characteristic; in 15 cases the pulse became more rapid and feeble; in none did the respirations show any significant change. Early vomiting was noted in 4 cases. Leukocyte counts were systematically made in only 5 cases, and in all of these there was a sudden leukocytosis about the time of the perforation. One could hardly expect more than a transitory increase in the leukocytes because with the infection of the peritoneum there would be a coincident pouring out of the leukocytes into the peritoneal cavity and a proportionate diminution of the leukocytes in the general

circulation. Abdominal pain was the first symptom in 20 of the cases, and in every case there was abdominal tenderness, usually a short time after the onset of the pain. In 14 cases there was rigidity of the abdominal muscles. Dr. Elsberg reported a case of perforation with recovery without operation. The bearing of the time of operation upon the result was shown by the following figures: Two cases were operated on in the first four hours after perforation with 100 per cent. of recoveries; in 3 cases the operation was done within the second four hours with 66.7 per cent. of recoveries; in 7 cases it was within the third four hours and 71.4 per cent. recovered; in 3 cases the operation was done in the fourth four hours with 100 per cent. of recoveries; in 1 case in the fifth four hours with no recovery; in 1 case in the sixth four hours with no recovery; in 7 cases the operation was done later than twenty-four hours after the perforation with 57 per cent. of recoveries, and in 1 fatal case the interval was not known. The perforation occurred most often in the third week and in relapses. If the perforation were very large or there was much infiltration it was a good plan to suture a piece of omentum over the perforation. Escher advocated, as a substitute for suture of the perforation, the sewing of the loop of intestine in the abdominal wound and the establishment of drainage. This procedure did not materially shorten the operation, and hence offered no advantage in that direction, but the drainage of the bowel might prove an advantage where the peritonitis was advanced. Although in over 80 per cent. of the cases there was only one perforation the surgeon should always look for other perforations. Irrigation of the peritoneal cavity should be avoided except when the peritoneum had been soiled by fecal matter.

DR. H. LILIENTHAL said that he had seen the case of perforation that had recovered without operation, and he felt certain about the correctness of the diagnosis. If the perforation were so large as to suggest the need of excision he would prefer drainage, but otherwise he would resort to suture. There was reason to believe that many unsuccessful cases had not been reported; hence it was probable that the mortality was actually higher than would appear from Dr. Elsberg's statistics.

DR. ERDMANN suggested that the typhoid bacilli found in the case having a vaginal discharge might have gained access to the vagina through the rupture of an abscess, or possibly had migrated through the Fallopian tubes. The tendency of surgeons to-day

was to rely more and more upon the power of the peritoneum to dispose of a small quantity of septic matter after the main focus had been removed.

DR. M. MANGES said that he, too, had no doubt about the correctness of the diagnosis in the reported case of recovery without operation from intestinal perforation, for he had seen the patient a number of times and considered the symptoms very clear. It was well to remember that the condition of shock in these cases in children was often masked by the fact that there was a sudden rise of temperature. A tell-tale perspiration would, however, afford the requisite clue.

DR. HEIMAN spoke of the need for the physician to be on the alert for intestinal perforation in cases having diarrhea, hemorrhage from the bowel or much abdominal distention. Sometimes a secondary anemia developing in the third week of typhoid caused a depression of the nervous system and simulated the shock of intestinal perforation. The suppuration of a mesenteric lymph node might do the same thing. Dr. Erdmann's first suggestion regarding the occurrence of the typhoid bacilli in the vaginal discharge seemed plausible, but the second suggestion could hardly be accepted because of the very rudimentary condition of the tubes and uterus in a child of six years.

DR. ELSBERG remarked that if all the cases had occurred in one year it was quite possible that another year, bringing with it a different type of typhoid, might yield very different statistics.

DR. JACOB SOBEL was the author of the paper on the

TREATMENT OF THE PAROXYSMS OF WHOOPING-COUGH BY PULLING
THE LOWER JAW DOWNWARD AND FORWARD.

(See page 418.)

DR. CHARLES HERRMAN said that he had tried this manipulation of the jaw in a number of cases, and, for the most part, with satisfactory result. It would usually fail, however in a crying child, and hence was not very applicable to very young children. It was of interest that this manipulation had failed to relieve the spasm of the glottis found in tetany, but in the latter condition there was, in addition to the glottic spasm, a spasm of the diaphragm and other respiratory muscles.

Current Literature.

PATHOLOGY.

Rocaz and Cruchet: Congenital Myxedema, Death from Bronchopneumonia, and Autopsy. (*Arch. de Méd. des Enf.* February, 1903, p. 97.)

A typical case of congenital myxedemic idiocy is reported, the child dying of concurrent bronchopneumonia. The clinical picture is classical so that the main points of interest lie in the autopsy.

The skin and subjacent fatty tissue were found to be markedly thickened, the dermis showing a considerable multiplication of connective tissue elements; hypertrophied hair-follicles with infiltration of pigment cells. Sebaceous and sweat glands were rare. The tongue presented analogous changes, the fungiform papillæ being much increased in size. The thyroid gland was completely absent, but imbedded in the cellulo-adipose tissue on either side of the trachea, there were four little round corpuscles of fire-red color. On examination there appeared to be extremely vascular encapsulated lymphoid bodies. The quantity and size of the blood vessels, were striking; no corpuscles of Hassal were found, though carefully sought for. The thymus gland showed very advanced sclerotic changes. The pancreas and pituitary glands were found to be *absolutely normal*. The spleen, liver and kidneys showed congestion and interstitial changes. It should be noted that the small size of the thymus gland is absolutely abnormal. In death from acute infections this organ is almost always found to be hypertrophied. The four vascular corpuscles, with veritable lakes of blood, might suggest miniature thymus glands, in spite of the absence of Hassal's corpuscles; or simple glands in the stage of development.

Raw, N.: Human and Bovine Tuberculosis; the Possibility of Human Infection from Cattle. (*British Medical Journal*. March 14, 1903, p. 596.)

Attention is called to the fact that phthisis pulmonalis is essentially a disease of young adults. Of 2,000 cases only 6 showed affection of the lymph nodes and joints; whereas, tuberculous

joints and lymph nodes, spinal disease, and abdominal tuberculosis are essentially diseases of infancy and rarely accompanied by true phthisis pulmonalis.

Raw believes that human and bovine tuberculosis are separate and distinct diseases, as shown by Koch, and that the human body is susceptible to both, the bovine tuberculosis causing the manifestations seen in infancy. The two diseases are so rarely seen together that he suggests an antagonism against each other, and the possibility that bovine tuberculosis may confer an immunity against human tuberculosis.

The clinical picture of cattle dying of tuberculosis is almost the exact counterpart of children dying of tabes mesenterica and abdominal tuberculosis. At least 70 per cent. of children dying of tuberculosis have diseased mesenteric lymph nodes. While the bacilli of human and bovine tuberculosis are morphologically identical, the cultures of the two diseases are different. As affirmed by Ravenel, the tubercle bacillus from bovine sources has in culture fairly constant and persistent peculiarities of growth and morphology by which it may tentatively be differentiated from that ordinarily found in man. Several cases are described in which calves were successfully inoculated by cultures taken from the mesenteric lymph nodes of children.

MEDICINE.

Abt, I. A.: Arthritis Deformans in Children. (*The Wisconsin Medical Journal*. January, 1903, p. 29.)

The literature relating to this subject is reviewed. Two varieties of arthritis deformans in children are observed. In the first there is enlargement of joints with enlargement of the superficial lymph nodes and the spleen. The joint enlargement seems to be due to thickening of all the tissues about the joint without notable hypertrophy of the bones or bony grating. In the second variety the bony lipping of the joints and bony grating occur without the enlargement of lymph nodes or spleen. An instance of this kind is given in detail. The patient was a boy ten years of age. The first attack occurred after exposure to rain and cold during a ride on an express wagon. The wrists, phalangeal joints, knees and ankles were affected by the process. The enlargement of the joints seemed largely due to bony thickening.

Blackett, E. J. : Measles and Chickenpox Occurring Simultaneously. (*The Lancet.* January 31, 1903, p. 301.)

Two cases are recorded in which the outbreak of chickenpox was followed in two or three days by a typical measles. The development of the measles rash so obscured the preceding chickenpox as to have rendered diagnosis impossible, had not the cases been previously seen.

Gordon, H. L. : A Rare Form of Purpura. (*The Lancet.* February 14, 1903, p. 433.)

A boy, of fourteen years, was attacked with symptoms of purpura rheumatica. Later he had attacks of colic and severe intestinal hemorrhages, as in Henoch's purpura. Thereafter he developed a succession of strange symptoms. In the course of twenty-four hours ugly swellings would appear and disappear, a dozen joints would be racked with pain in succession, and the surface of the body looked like an atlas of skin diseases, exhibiting simple erythema and purpura, urticaria, and erythema exudativum in all its varieties; blushes and spots, stony nodes and nodules, and enormous papules in endless succession. The illness lasted at least five months.

SURGERY.

Jones, R. : An Address on Certain Principles and Methods in the Surgery of the Paralysis of Children. (*The Lancet.* February 14, 1903, p. 422.)

The article deals with anterior poliomyelitis and cerebral paralysis of the spastic type. The writer emphasizes the necessity of understanding the manner in which deformities are developed in these affections, in order that the surgeon may be in position not only to cure them but to prevent them. In acute infantile paralysis deformities are due not only to the unequal action of antagonistic muscular groups but also to faulty posture, generally due to the influence of gravity. The relief of the resulting deformities is often regarded as impossible because of considering muscles which have lost power as the result of over-stretching or desuetude as paralyzed by reason of a cord lesion. Instances of cure of apparently hopeless cases of drop-wrist by over-correcting

the deformity, so as to allow the over-stretched muscles to contract or "take up slack" are given. The confusion of muscles which are useless with muscles positively paralyzed has long prevented the recognition of the possibilities of recovery in these cases.

Tendon transplantation has been of most use in cases of paralysis of one muscle or a group of muscles, such as the peronei or tibiales. It is important to take the nearest available tendon and especially to select one whose line of action is parallel to that of the paralyzed muscle.

For flaillike joints or those sufficiently so to require constant mechanical care arthrodesis is advocated. This is usually applied to the knee or ankle. Excision of the joint is more of an operation than is required in these cases. A modified arthrodesis is advocated for talipes calcaneus, rather than the shortening of the Achilles tendon.

In the treatment of the paralyses of cerebral origin the writer says that it may be taken as an axiom that prolonged fixation of spastic muscles in positions opposed to their contraction lessens the severity of the spasm. Tenotomy may be used as an aid in these cases. In the later stages the practice of voluntary movements, especially in directions opposed to the muscle contractures is of the greatest importance. Tenotomy is especially valuable, not merely from the mechanical effects to be derived from it, but because it lessens the irritability of the cord and diminishes the spasticity even of muscles not themselves cut.

HYGIENE AND THERAPEUTICS.

Campbell, F. J. : Causes of Epilepsy in the Young. (*American Medicine.* February 14, 1903, p. 408.)

Anent Jacobi's recent article on this subject and his statement that he had never seen a recovery from paralysis, idiocy or epilepsy due to circumcision, Campbell reports the following case. A boy of thirteen years was brought for treatment for epilepsy. For several years he had had convulsions, increasing in frequency till they occurred daily or several times in a day. As he had phimosis with balanitis and an irritating smegma, he was circumcised. He had one convulsion the following day, but in the ten years that have since passed, he has not had another

seizure. As nothing was done apart from the circumcision the case is considered a cure resulting from that operation.

Cook, H. W.: The Clinical Value of Blood Pressure Determinations as a Guide to Stimulation in Sick Children. (*The American Journal of the Medical Sciences.* March, 1903, p. 433.)

By means of a modified Riva-Rocci sphygmomanometer the blood pressure was taken as a guide to stimulation. The normal pressure during the first few months of life averages about 70 or 75 mm.; from six to twelve months it is 80 or 85 mm. During the second year a pressure from 80 to 90 mm. may be expected, and in the third year the range is between 90 and 100 mm. It does not rise much above 110 during childhood. For a child from three to ten years old, 85 mm. could be considered moderately low, 75 mm. low, and 65 mm. very low. The pressure runs very equally from day to day. A physiological rise of 5 to 10 mm. occurs after the ingestion of a bottle of 5 to 8 ounces. Crying, restlessness, or any manifestation of excitement will also often be accompanied by a similar rise in a healthy child.

The hypodermic administration of strychnin ($\frac{1}{400}$ grain to infants, one to sixteen months old, and $\frac{1}{200}$ to children of two years) was followed by a rise of 10 to 30 mm. in 10 to 20 minutes. Six to eight hours is an excellent reaction time, and this becomes shorter as the patient becomes more profoundly toxic and exhausted. No rise or a rise of a few minutes only occurred in a number of cases within twenty-four hours of death. Digitalin seemed to have a more immediate action than strychnin, rather more sure, and caused a higher rise in blood pressure, which, however, was maintained for a shorter time. The effects of alcohol for individual doses were not uniform, and the best effects would seem to be the result of repeated doses. Where the demand for a stimulant is only moderate it is best to start with alcohol in doses of five to thirty drops every two to four hours, as indicated. Infusions of normal salt solution showed no true stimulating effect aside from the local irritation.

The author makes a plea for the use of the blood pressure chart as well as the pulse and temperature chart. While a certain blood pressure reading is no absolute indication of a patient's condition, the variations in blood pressure, numerically determined, constitute the best single guide to the intelligent administration of stimulants.

ARCHIVES OF PEDIATRICS.

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[No. 7.]

Original Communications.

A REPORT OF EIGHT CASES OF PNEUMONIA IN INFANCY TREATED WITH ANTIPNEU- MOCOCCIC SERUM.*

BY JOHN LOVETT MORSE, A.M., M.D.,

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Physician at the City Hospital and at the Infants' Hospital, Boston.

During the last dozen years many attempts have been made to produce a serum of therapeutic value in the treatment of pneumonia in man. The Klemperers were the first to produce immunity experimentally. They used filtered cultures and succeeded in obtaining a serum which protected other animals against fatal pneumococcus infection. They were able to demonstrate a protective body in the blood which they termed antipneumotoxin. Its therapeutic value was, however, very feeble. Its action was largely, though not entirely, antitoxic. Many others have since worked on the same lines with more or less unsatisfactory results. Other investigators have used sera obtained from men ill with, or convalescing from, pneumonia. Their results have been equally unsatisfactory.

Later investigators, among the first of whom were Washbourne, De Renzi and Pane, have, by the use of living cultures, produced sera which protected against virulent pneumococci and possessed a certain therapeutic value. These sera exert a direct destructive action on the bacteria but probably have little or no effect on the separable toxins of the pneumococcus, that is, they are antiinfectious rather than antitoxic in their action. Such sera are therefore usually known as antipneumococcus sera. The results obtained in the treatment of pneumonia in man with these sera have been on the whole discouraging, although some few observers have reported very favorable figures. Goldsborough about a year ago collected the cases treated with the various

* Read before the American Pediatric Society, Washington, D. C., May 12, 13, 14, 1903.

sera and published a summary in the Journal of the American Medical Association. The cause of the failure of the antipneumococcus sera to give more satisfactory therapeutic results is presumably the same as in the case of the other antibacterial sera, and that is, that while they are rich in the immunizing body, they are probably lacking in the end-body or complement. If this complement can be provided they will probably become more effective. Investigation along this line seems, therefore, most likely to yield results of value in the serum treatment of pneumonia.

Through the courtesy of the H. K. Mulford Co., who furnished me with the serum, I have been able to test the antipneumococcic serum in 8 cases of pneumonia in infants. All were patients at The Infants' Hospital, Boston. For lack of a better basis of classification, I have arranged them according to the dosage and total amount of serum used. The serum was injected every four hours, while the temperature was taken in the rectum every two hours. No antipyretic treatment was used except in 1 case which received a few baths. The other treatment was limited to regulation of the diet and stimulation when necessary. A careful physical examination was made in every case before the serum was begun, daily during its use, and for some days after it was omitted. The blood was examined before and after its use in only 3 cases.

CASE I.—Mary M., aged nine months, had had a cold for two weeks. She suddenly became much more sick and developed a high temperature on January 7th. She was admitted to The Infants' Hospital January 9th.

She was fairly developed and nourished. There was slight cyanosis. The alæ nasi moved with respiration. The heart was normal. There was slight dullness over the right lower lobe as far forward as the midaxillary line. At the root of the lobe, extending outward and downward about 4 cm., the respiration and voice sounds were bronchial. Over the rest of the dull area the respiration was diminished and bronchovesicular in character. The voice sounds were slightly increased and numerous medium moist râles were heard. The rest of the examination was negative except for slight evidences of rickets.

White blood corpuscles, 21,875. Urine: pale, turbid, acid, no albumin.

Five cc. of antipneumococcic serum were given every four hours.

January 10th. There were flatness with bronchial respiration, bronchial voice sounds and high-pitched medium moist râles over the right lower lobe as far forward as the anterior axillary line. There were numerous moist râles over the rest of the lobe in front. There were also a few medium moist râles in the left back. The color was no better.

January 11th. There was flatness with bronchial respiration over the same area as before but the respiration was diminished in intensity. There were a few high-pitched moist râles in the right lower back but none elsewhere.

The antipneumococcic serum was then omitted because the supply had failed. A total of 50 cc. was given.

January 12th. White corpuscles, 18,125.

January 13th. There were flatness with bronchial respiration,

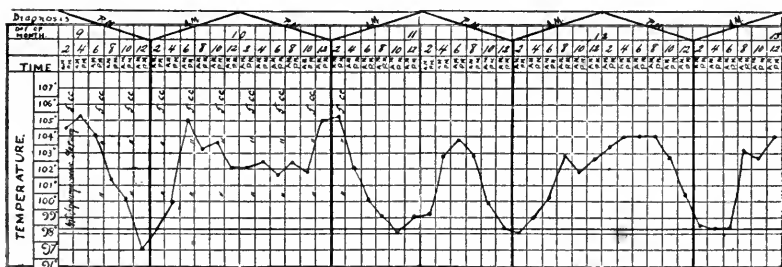


CHART I.

increased voice sounds and an occasional high-pitched moist râle over the right lower lobe.

January 14th. Paracentesis was performed for an acute purulent inflammation of the right middle ear.

January 15th. The signs of solidification were less marked. The temperature fell to normal by crisis on that day and remained there.

January 17th. The lungs were clear. (See Chart I.)

This case came under observation so early and showed such definite signs that it seemed most suitable to test the value of the serum. The marked variations in the temperature shown in the chart are not unusual in the pneumonias of infancy. They were just as marked after the serum treatment was discontinued as before. The temperature both rose and fell immediately after the injections. The crisis occurred on the ninth day, rather later than is usual in infantile pneumonias. The solidification of

the lungs increased after the serum treatment was begun. The rate of the pulse and respiration was unaffected. The conclusion seems justified, therefore, that the serum had no effect either on the course of the disease or its symptoms.

CASE II.—Harry R., aged seventeen months, had had a slight diarrhea, and had passed but little urine during the three weeks since a vaccination. The history was, however, very indefinite. The physician who sent the baby to the hospital thought that the pneumonia began January 2d. He was admitted to The Infants' Hospital January 9th.

He was a large, fat baby. The fontanel was level. The *alæ nasi* moved with respiration. The heart was normal. There was marked dullness over the right upper lobe except in the lower part in front where there was tympany. There was bronchial respiration in the right front above the second rib inside the nipple line and above the fourth rib outside the nipple line. The voice sounds were bronchial over the same area. The respiration over the rest of the right upper lobe was bronchovesicular. The rest of the right lung and left lung were normal. The physical examination was otherwise negative, except for slight evidences of rickets. The general condition was good.

White corpuscles, 26,000.

Urine: high, acid, loaded with urates, albumin $\frac{1}{2}$ per cent. or more. Sediment: urates, small round cells, a little normal blood, hyaline, fine granular and epithelial casts.

Five cc. of antipneumococcic serum every four hours was begun.

January 10th. The heart sounds were strong. The second sound at the pulmonic orifice was the louder. The color was not as good. The lips were dry and bleeding. The lungs showed in addition a very few râles in the right upper lobe. The urine was unchanged.

January 11th. Flatness with bronchial respiration and voice sounds had developed over the whole right upper lobe. No râles were heard. The rest of the chest was normal.

The antipneumococcic serum was omitted after 50 cc. had been given because of the failure of the supply.

January 12th. White corpuscles, 47,000.

January 13th. The lungs were unchanged. Paracentesis was done on both ears because of acute inflammation.

The temperature ranged normal after the 12th but never

touched normal. The signs of solidification began to diminish on January 17th. The urine continued to show the same evidences of acute nephritis but was passed in fair amounts. The amount of urine fell off very decidedly on the 18th and very little was passed on the 19th. The urine on that day was thick and turbid and contained many small round cells, a very little normal blood, many hyaline, fine granular, brown granular and epithelial casts, and an occasional waxy cast. Marked symptoms of uremia developed during the 19th and death occurred in convulsions on the 20th. (See Chart II.)

The serum apparently had no effect whatever. The tem-

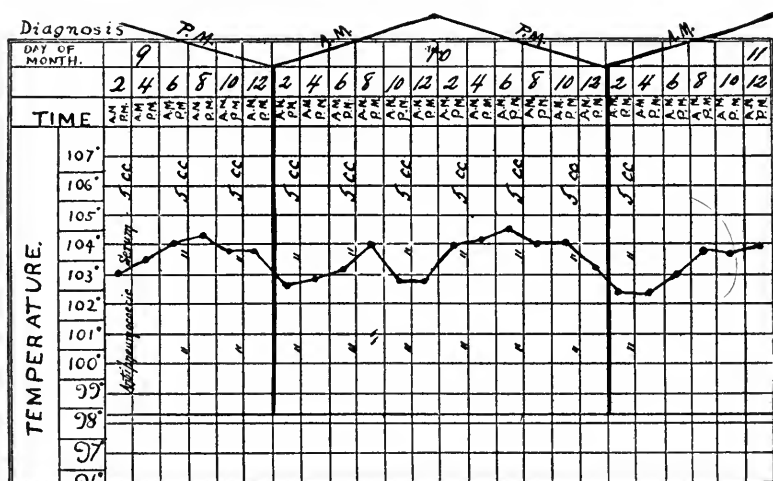


CHART II.

perature was not influenced in any way. There was no reduction in the rate of the pulse or respiration. The physical signs increased while it was being used. The course of the disease was certainly not shortened. Inflammation developed in both middle ears. Whether this inflammation was due to the pneumococcus or not is unknown as the pus was not examined. Presumably it was. Death was caused by the nephritis which was active at entrance before the serum was used. There is no reason to suppose that the serum aggravated the process in the kidneys.

CASE III.—David S., aged eight months, was admitted to The Infants' Hospital April 8th, on the fourth day of an acute illness. He was well developed and fairly nourished. The color was

good. The *alæ nasi* moved with respiration, which was grunting. There was slight retraction of the lower chest with inspiration. Resonance was impaired over the whole of both chests. There was bronchial respiration over the right lower lobe as far forward as the posterior axillary line and downward to the eighth rib. The voice sounds were increased in this area, and an occasional high-pitched *râle* was heard. The rest of the lungs was clear. The examination was otherwise negative except for slight evidences of rickets and slight enlargement of the spleen.

White count, 11,875.

The urine was high in color, highly acid and contained a trace of albumin. The sediment showed uric acid and an occasional fine granular and epithelial cast.

Five cc. of antipneumococcic serum were given every four hours.



CHART III.

April 10th. There was flatness in the area of bronchial respiration and crepitant and medium moist *râles* were heard over the rest of the right lower lobe.

April 11th. The signs were essentially the same although the *râles* were more numerous.

The antipneumococcic serum was omitted because of the fall in temperature. Ninety cc. had been given.

The temperature rose again, however, reaching 103° F. on the 12th. On the 13th it fell, that is the 9th day, by crisis and remained there. The lungs began to clear on the 12th and were practically normal on the 14th.

April 13th. White count, 16,016. (See Chart III.)

This case also seemed a favorable one to study as the physical signs were well-marked and the serum was begun on the fourth day. It had no apparent effect, however. The temperature both

rose and fell immediately after the injections. In spite of repeated injections it remained elevated until the seventh day when there was a pseudo-crisis. The serum was then omitted. The real crisis appeared on the ninth day. The physical signs increased, if anything, while the serum was being used. The rate of the pulse and respiration was unaffected.

CASE IV.—Mary W., aged sixteen months, was admitted to The Infants' Hospital May 11th without any history.

She was fairly developed and nourished. The *alæ nasi* moved with respiration, which was grunting. There was flatness in the right front below the third rib extending backward to the post-axillary line. The respiration and voice sounds were bronchial in this area, and an occasional high-pitched moist râle was heard. The rest of the right lung was normal. There was slight dullness with bronchovesicular respiration over the left lower lobe, more

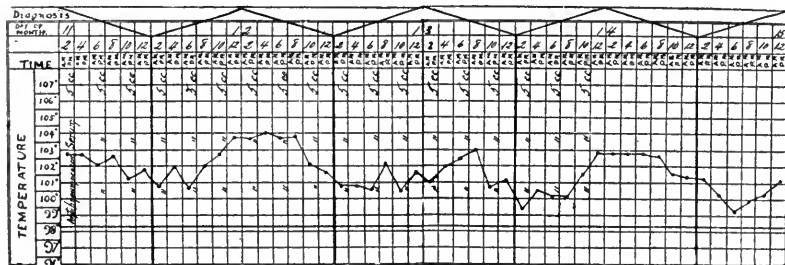


CHART IV.

marked at the angle of the scapula and in the axilla. The voice sounds were somewhat increased and an occasional moist râle was heard. The examination was otherwise negative except for slight evidences of rickets.

Five cc. of antipneumococcic serum were given every four hours.

May 14th. There was no material change in the physical signs although the evidences of solidification were rather more marked on the left. There were râles throughout both lungs. The general condition was not as good.

The antipneumococcic serum was omitted after 90 cc. had been given, as it seemed to be doing no good.

The temperature continued to range irregularly elevated and an empyema developed on the right side. (See Chart IV.)

This case was undoubtedly one of bronchopneumonia and per-

haps, therefore, hardly a fair one on which to test the serum, as bronchopneumonia is often caused by other organisms than the pneumococcus. The temperature showed considerable daily variations, which continued after the serum was omitted. The temperature both rose and fell immediately after its use. It had no effect on the rate of the pulse and respiration. The physical signs increased slightly while it was being used. An empyema developed later.

CASE V.—George G., aged eighteen months, had been a little out of sorts for two weeks but had shown no definite symptoms. He was taken suddenly sick April 11th and was admitted to The Infants' Hospital April 14th.

He was well developed and nourished, but pale. The *alæ nasi* moved with respiration. There was dullness in the right back above the middle of the scapula with slightly changed respiration and prolonged expiration. The voice sounds were not changed and no *râles* were heard. The spleen was considerably enlarged. The examination was otherwise negative except for moderate signs of rickets.

White corpuscles, 27,000.

Urine: high, acid, 1022, trace of albumin. Sediment: occasional small round cells, no casts.

April 17th. There was slight dullness with bronchial respiration over the right upper lobe, back and front. The voice sounds were slightly increased but no *râles* were heard.

The antipneumococcic serum was first given at this time, that is, on the sixth day of the disease. Five cc. were ordered every four hours.

April 18th. The signs were those of complete solidification of the right upper lobe.

April 20th. The temperature fell nearly to normal in the morning, but rose again in the afternoon.

April 21st. The right upper lobe showed no signs of resolution but the bases of both lungs were full of fine, moist *râles*. There was also edema of the feet and hands but more of the face. The urine was high, acid and contained a slight trace of albumin. The sediment showed an occasional small round cell and hyaline cast.

The antipneumococcic serum was omitted because the temperature was normal. One hundred and fifteen cc. in all were given.

April 23d. The edema of the feet and hands steadily increased and death occurred as the result of cardiac failure. (See Chart V.)

The temperature both rose and fell immediately after the administration of the serum. It practically reached normal on the ninth day of the disease, three days after the serum was begun. This fall, coming as it did on the ninth day, can hardly, however, be attributed to the serum. It came unusually late for an uncomplicated pneumonia in an infant. The serum had no effect on the rate of the pulse and respiration. The process in the lung became more intense while it was being used. Death followed as the result of cardiac failure due, in all probability, to toxemia. The serum was certainly of no utility in this case.

CASE VI.—Jennie F., aged twenty-two months, was taken sud-

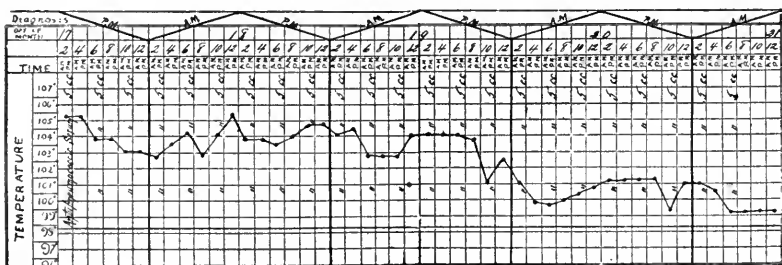


CHART V.

denly ill June 9th with fever, cough and dyspnea. A diagnosis of bronchitis was made by some physician June 10th. The diagnosis of pneumonia was made by another physician June 17th and she was admitted to The Infants' Hospital the same day.

She was well developed and nourished and of good color. The *alæ nasi* moved with respiration. There was dullness with bronchovesicular respiration, increased voice sounds and occasional râles over the left upper lobe. The examination was otherwise negative except for slight evidences of rickets.

Treatment with the antipneumococcic serum was begun at once. Ten cc. were given every four hours.

June 18th. In the morning the left upper lobe showed all the signs of complete solidification. The general condition was somewhat better. The crisis occurred that afternoon and the temperature did not rise again.

The serum was omitted after the crisis, 70 cc. having been given.

Resolution began June 19th, and the lungs were practically clear June 21st. (See Chart VI.)

The temperature both rose and fell immediately after the use of the serum. If we consider, as is probably true, that the pneumonia began on June 9th and that the diagnosis of bronchitis was wrong, then treatment was not begun until the seventh day of the disease and the crisis occurred on the eighth day. In this case, of course, it could not be attributed to the serum.

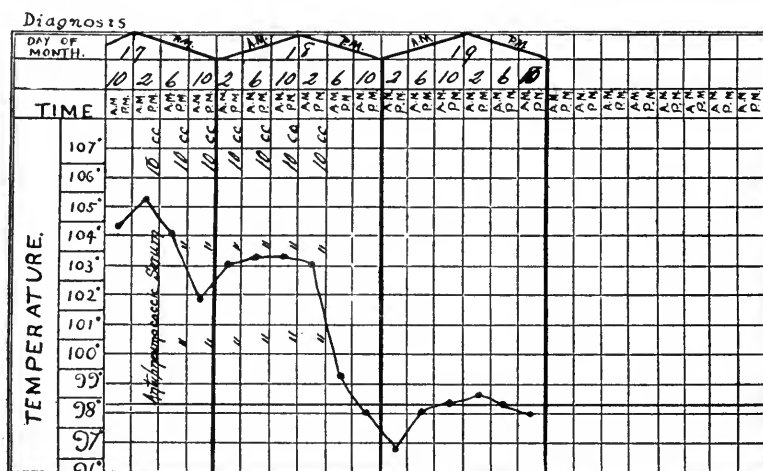


CHART VI.

If we assume that the diagnosis of bronchitis was correct and that the pneumonia did not begin until June 17th, then the crisis occurred on the second day and might be attributed to the use of the serum. As, however, the signs of solidification were well marked at entrance, and there were no evidences of bronchitis elsewhere, the diagnosis of bronchitis was undoubtedly wrong. The crisis occurred on the eighth day, therefore, and was not due to the serum. The physical signs increased after the serum was begun. No effect on the rate of the pulse or respiration was noted.

CASE VII.—Frank T., aged twenty-four months, entered The Infants' Hospital April 28th with an indefinite history of a week's illness.

He was a well developed and fairly nourished negro. The alæ nasi moved with respiration, which was grunting. The right border of cardiac dullness was 3 cm. to the right of the median

line. The heart sounds were louder to the left than to the right of the sternum. The left side moved less than the right. There was no bulging of the intercostal spaces. There was an area of flatness coinciding with the left lower lobe. There was slight dullness in Traube's space. There was loud bronchial respiration over the left lower lobe except at the extreme base where it was diminished. The voice sounds were increased; the fremitus was not determined. No râles were heard. The examination was otherwise negative except for slight signs of rickets.

Urine: high, acid, turbid, no albumin.

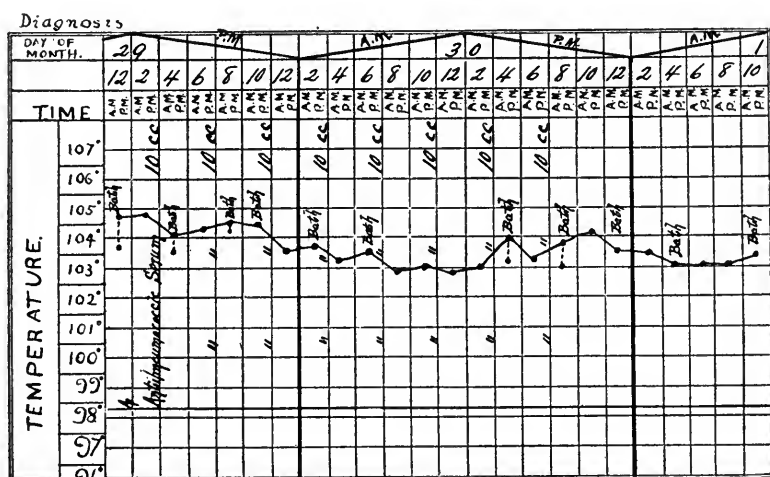


CHART VII.

April 29th. Treatment with antipneumococcic serum was begun, 10 cc. being given every four hours.

April 30th. The serum was omitted after 80 cc. had been given because the supply was exhausted.

May 1st. The heart was in normal position. There was dullness in Traube's space. There was flatness over the left lower lobe with bronchial respiration and voice sounds and an occasional high-pitched râle.

The temperature continued elevated. On May 3d the heart was somewhat displaced and there were the signs of a small amount of fluid in the left chest. Exploratory puncture was negative. The temperature continued elevated and the signs of fluid increased. On May 7th pus was obtained by puncture. The patient ultimately recovered. (See Chart VII.)

In this case the temperature neither rose nor fell after the use

of the serum. The signs in the lungs did not change during its use. An empyema developed afterward. No effect on the rate of the pulse or respiration was noted.

CASE VIII.—Kaleel O., aged fourteen months, was admitted to The Infants' Hospital June 19th without history.

He was well developed and nourished and of good color. The *alæ nasi* moved with respiration which was grunting. There was dullness over the whole right lower lobe with slightly modified vesicular respiration. The voice sounds were slightly, and the fremitus considerably, increased. There were no râles. The examination was otherwise negative except for slight evidences of rickets.

Urine: high, acid, no albumin.

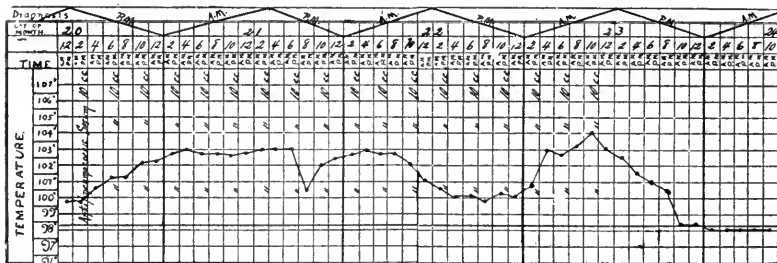


CHART VIII.

Although the temperature was low the antipneumococcic serum was begun on the 20th, 10 cc. being given every four hours.

June 22d. There was dullness over the whole right back with bronchovesicular respiration, increased voice sounds and fremitus. There was flatness over the right front with bronchovesicular respiration at the upper part. Elsewhere it was normal.

June 23d. The serum was omitted after 180 cc. had been given, because it was absorbed poorly. Both thighs were swollen, indurated and tender as the result of the injections.

The signs of solidification were somewhat more marked. The temperature fell to normal by crisis that night and did not rise again.

The signs of solidification quickly cleared up. The induration of the thighs was gone by June 27th. (See Chart VIII.)

This case shows the marked variations in temperature so often seen in the pneumonias of infancy. They were evidently not influenced by the injections of serum as the temperature both rose

and fell after them. On account of the absence of history it was impossible to tell whether or not the serum shortened the course of the disease. The physical signs increased, however, while it was being used. This is the only case in which the serum was not well absorbed and caused any induration. This disappeared rapidly and did no harm. No effect on the rate of the pulse or respiration was noted.

In no case did the serum have any perceptible effect on the temperature. In 6 it both rose and fell immediately after the injection, while in 2 (2 and 7) the variations immediately after the injections were insignificant. In no case in which the time of the onset could be determined was the course of the disease shortened (1, 3, 5, 6, 7.) In fact, the crisis occurred later in these cases than is usual in the pneumonias of infants, coming on the eighth day in 1 (6) and on the ninth day in 3 (1, 3, 5). An empyema developed in the other (7) without there having been any fall in the temperature.

No effect on the rate of the pulse or respiration was noted in any case.

Several observers have noted that in adults the subjective symptoms were relieved for a time after each injection of serum. In infants it is, of course, extremely difficult to estimate variations in the degree of the subjective symptoms. Nothing was noticed in these cases, however, to justify the assumption that they were in any way modified by the serum.

The physical signs increased in 6 cases while the serum was being used (1, 2, 3, 4, 5, 8). In the others (6 and 7) in which the serum was not used until late in the disease there was no change.

Two (1 and 2) cases developed purulent inflammation of the middle ears, and 2 (4 and 7) developed empyema. Two (2 and 5) died; 1 (2) of nephritis, and 1 (5) of cardiac failure. In neither case was there anything to show that death was due to, or hastened by, the use of the serum. The serum was well absorbed in all the cases but 1 (8), in which it caused swelling, tenderness and induration about the seat of injection. These disappeared in a week. There were no rashes, joint symptoms, or late rises in temperature as the result of the injections.

The blood examinations were too few (1, 2 and 3) to be of any value, and the results were, moreover, not uniform. In an adult case on my service at the Boston City Hospital, in which examinations of the blood were made more often, there was usually a slight diminution in the number of leukocytes after the injection of the

serum. Taken as a whole, there was a decided drop in the number of leukocytes after the serum was begun which persisted as long as it was continued. There was a slight rise again after it was omitted. (See Chart IX.)

CONCLUSIONS.—In these cases the antipneumococcic serum had no effect on the duration of the disease, the course of the tem-

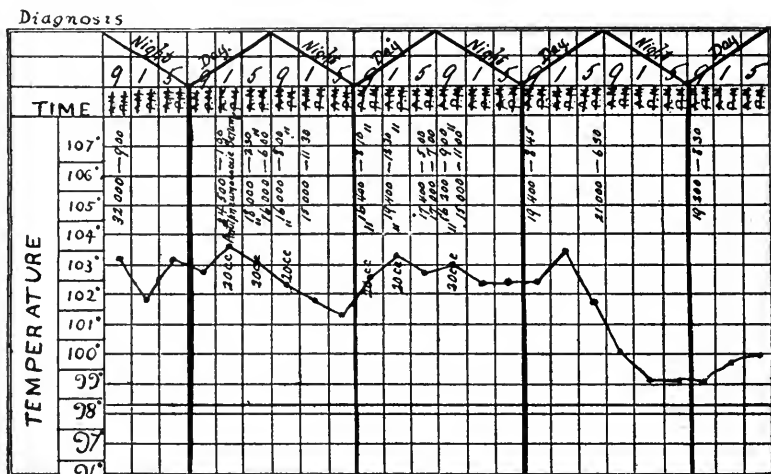


CHART IX.

perature, the rate of the pulse and respiration or the progress of the local condition. Complications occurred at least as frequently as is usual. Death occurred in an unusually large percentage. The serum, while it apparently did no good, certainly did no harm.

DISCUSSION.

DR. JENNINGS.—I had one experience in the use of the serum under conditions that would tend to show very clearly the effects of the serum upon the microorganisms in a case of pneumococcic meningitis. The serum was used within thirty-six hours after the onset of symptoms and repeated bacteriological examinations were made of the cerebrospinal fluid subsequent to the first injection. No influence whatever was made by the serum upon the clinical phenomena of the disease or upon the meningeal culture.

DR. SAUNDERS.—My experience with the serum has been just the same as that of the other gentleman. The last time I used it was, I think, about two years ago. I obtained no result whatever from the use of the serum and I abandoned it altogether.

PRINCIPLES OF INFANT FEEDING AS BASED ON THE EVOLUTION OF MAMMALS.*

BY HENRY DWIGHT CHAPIN, M.D.,

New York.

The satisfactory and systematic consideration of the subject of substitute infant feeding is largely dependent upon pediatricians agreeing on some basic principles, and these can only be established by patient study of biology.

It is fallacious to state that infants must have milk because all young animals are carnivorous, as no young mammal is carnivorous, that is a flesh eater, as far as I can find. It is meaningless to state that infant's food should be milk because milk contains animal proteid, for meat and fish are also animal proteid, but not suitable for infant feeding. It is likewise an error to teach that the differences between human milk and cow's milk lie solely in the varying percentages of casein or caseinogen and lactalbumin. I have been having the proteids of milk separated before my classes and every time I have seen it done the more convinced I have become that the proteids of the two milks differ radically. In the first place, the caseins are so unlike in their behavior with reagents that there is no comparison between them, and after separating the casein and the albumin, considerable quantities of albumoses and peptones are found, particularly in human milk, these forming about one-third of the total proteids of human milk. In some recent analyses of human milk, fully one-third of the proteids, consisting of albumoses and peptones, have been classed as sugar, owing to the faulty methods of estimating proteids employed. When it comes to curding milk with rennet and a trace of dilute hydrochloric acid, the curds formed in human milk and cow's milk are so unlike that even the nurses who look on are struck with the differences.

I do not think it is too much to say that any one who has worked with milk itself, and not with reports of milk analyses, would hardly give much weight to the statement that the differences between human milk and cow's milk lie only in the dif-

* Read at the meeting of the American Pediatric Society, Washington, D. C., May 12, 13, 14, 1903.

ferent percentages of casein or caseinogen and so-called lactalbumin present. Any doubter should work with milk after modern methods of analysis, and he would soon be convinced that the old teaching is erroneous. He would soon see that the caseins have very different properties. This may be due to their combination with different salts, but I am speaking of the caseins as we meet them and deal with them, and not of their ultimate composition.

There are certain principles in dietetics that are fairly well established. Among these are, that a certain minimum quantity of digestible proteid is needed by each animal, and also certain quantities of fat and carbohydrates to supply energy and heat, which quantities depend largely on the expenditure of energy and heat by the animal. It has further been established that a certain amount of ballast, or bulky material, is needed to properly occupy and distend the digestive tract, and that best results attend giving food naturally adapted to the particular species. If any one thing has been established in artificial feeding of young animals, especially of infants, it is the great advantage of feeding the food naturally adapted to the young animal, viz., mother's milk.

When an analysis of milk is made it is found to contain the five main food elements—fat, proteids, carbohydrates, mineral matter, and water. All milks agree in this respect, but the percentage of composition varies greatly. The vital tissues of the body are essentially proteid and we know that proteids cannot be produced by animals from fat or carbohydrates. We would, therefore, naturally expect to find rapid growth in the young animal corresponding to high proteid in the mother's milk, and this is exactly what we do find. After eliminating differences of percentages which show potential food value, we find that milks differ radically in the character of curds formed. The curds are formed from portions of the proteids, so the essential difference between milks lies with the proteids and practically is more of form than of ultimate composition.

A razor and an axe might be analyzed and both found to be composed of iron and carbon in slightly different proportions. Adjusting the proportions of iron and carbon would not make a razor of an axe. Both are to be used in cutting, but they are intended to cut different substances, and their difference in form has this object in view. Now a study of the proteids of milk

shows them to be of nearly the same composition, but they assume different forms, as, I believe, for specific purposes. It is beyond our power to make proteid, but we can study the purpose of the different forms the proteids of milk take under the action of the digestive juices and act on the information so obtained.

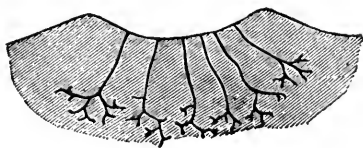


FIG. I.—MAMMARY GLAND OF EARLY MAMMALS. FROM GEGENBAUR.

Much light will be thrown on this subject by a study of the evolution of the mammary function.

Away back in the past there were no mammals such as we see around us now. The female laid eggs and incubated them as birds do.¹ The young which were hatched in an undeveloped state were left in a nest and were nourished by milk ejected from the mammary glands of the mother into the mouth of the young animal, which had a peculiar shape that enabled it to cover the numerous outlets of the glands, as no teats were present. (See Fig. I.)

In a higher form¹ (see Fig. II.) the egg, after being laid, was deposited in a pouch or mammary depression in the abdomen of the mother and the milk was ejected along certain tufts of hair, from which the young animal obtained its nourishment, no teats being present in this form.

In a still higher form (see Fig. III.) the egg was incubated inside the body, and the young animal, immediately after birth, was attached to a teat in the abdominal pouch of the mother, by the mother, where it grew fast to the teat, and became as much attached to the mother as if it was attached by the navel cord to the placenta.¹ (See Fig. IV.) Such a young animal is called a mammary fetus and is nourished by milk ejected by the mother into its mouth,

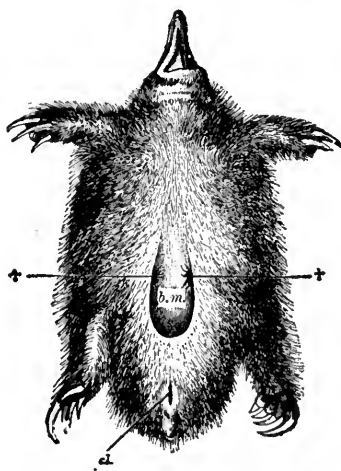


FIG. II.—POUCH WHERE EGG IS INCUBATED. FROM WIEDERSHEIM.

it being unable to suck. Most animals of these classes have become extinct. In the kangaroo there is a uterine development of about thirty-eight days, and a mammary development of eight months. The mother attains a height of seven feet and the young at birth is no larger than the young of a mouse, but on the teat attains to a weight of about ten pounds.² At birth it has only a trace of a brain, but its lungs, heart, and kidneys are perfectly formed. Its digestive tract is rudimentary.



FIG. III.—PREPLACENTAL NUTRITION AND DEVELOPMENT. FROM DALTON.

In the next higher form (see Fig. V.) we find that after the ovum has developed to a certain extent, instead of leaving the uterine cavity and becoming attached to a teat, that it becomes attached to the uterine wall and has a period of placental development. In America only one form of implacental animal, the opossum, is known. In Australia, where evo-

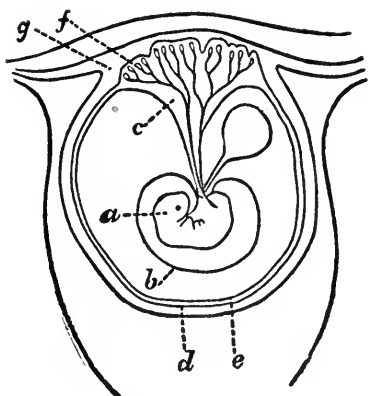


FIG. V.—PLACENTAL NUTRITION. FROM CADIAT.



FIG. IV.—MAMMARY FETUS OF KANGAROO—NO PLACENTAL STAGE. FROM PARKER AND HASWELL.

lution has not progressed as far as in other countries, there are many species of implacental animals.

Placental animals show wide differences in state of development at birth. We see some born blind and helpless—puppies and kittens—others with fully developed nervous systems but poorly developed digestive systems—calves, lambs, colts—and others almost perfectly developed in every respect, of which the guinea-pig, which is said to be able to eat with its mother the day after birth, is an example.³

These varying states of development at birth seem to be closely connected with the mother's means of self defence. The young of carnivorous animals which are not preyed upon, are brought forth in a very poorly developed state because the parent is able to protect them. The young of herbivorous animals, whose safety depends on keen senses and flight, are brought forth with fully developed nervous systems and are able to follow the mother as soon as born. The guinea-pig represents the type of in-offensive and defenceless animals whose existence as a species depends on being reproduced in great numbers,

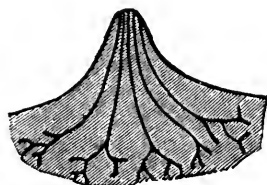


FIG. VI.—DIAGRAM OF HUMAN NIPPLE. FROM GEGENBAUR.

which are soon able to care for themselves.

Comparative anatomists tell us that in the early stages of development, embryos of all kinds of animals are so much alike that it is almost impossible to tell them apart, and that the embryos of our present mammals in the course of development show traces of the development of a marsupium or pouch like that of the kangaroo.⁴ In the human mother there is indelibly stamped the record of a time when there was no placental connection with the fetus, for just about the time the placenta is formed (third month) the mammary glands begin to secrete colostrum. This time corresponds to the period at which birth takes place in implantals or marsupials and the fetus becomes attached to the teat. The human mammary gland also shows vestiges of the state in which there was no nipple, the gland having many outlets, as in the lower forms of mammals. (See Figs. VI. and VII. Compare with Fig. I.)

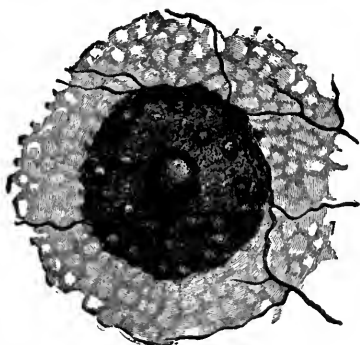


FIG. VII.—HUMAN NIPPLE. FROM JEWETT.

The digestive tract in the embryo, as is well known, is at first a straight tube, which gradually develops into the same form as that of the mother. In the kangaroo this change takes place at the teat and the stomach changes from a simple pouch to a sacculated

organ. No one would think the artificial feeding of an animal whose mouth grew fast to a teat, and who was nourished without any effort on its part by the mother injecting the milk into a gullet, specially arranged to prevent the milk from passing into the lungs, was only a matter of supplying fat, proteids, carbohydrates, etc. It would at once be said that the young animal and the mother were adapted to each other, and that the young animal's digestive tract and mother's milk complemented each other; also, that until development of the animal was complete it should be looked upon as being not separate from the mother, and that the ordinary laws of dietetics did not apply to it. When it ceased to be dependent on the mother and had a complete digestive apparatus, these laws would apply, as we find they actually do.

In infant feeding, therefore, we should look upon the infant as having three stages of development and nutrition. (1) A pre-placental stage of about three months. (2) A placental stage of about six months. (3) A mammary stage of about ten to twelve months.

When a baby is born much before term it is a difficult matter to save it, as it is not ready for the mammary stage. A baby that is early deprived of the breast should be looked upon, from a nutritional standpoint, as premature, and not at all fitted to be separated from its mother, as the digestive tract is not fully developed.

Colostrum is adapted for absorption and requires little or no digestive effort. It is first secreted about the third or fourth month of pregnancy. When the infant is born, its digestive apparatus is so far completed that it requires colostrum for but a few days, when normal milk is secreted. Here is a plain case of the mother adapting herself to the infant, which shows that, while at the breast, the infant must be looked upon as still in a way attached to the mother. The character of the milk does not now change to any great extent but the infant develops until its digestive tract is completed, when the milk supply normally fails and the infant commences to eat the same food as the mother.

Now if instead of directing our entire attention to the chemical composition of the milk, we study the changes the milk undergoes under the action of the baby's digestive juices, we will find that milk has a function aside from that of nutrition, and this function is principally connected with the proteids. While the stom-

ach of an infant is formed at birth, its function is not developed. Wiedersheim⁴ states that a stomach that does not secrete the normal digestive juices should be looked upon as a widened section of the enteric canal, and from this standpoint some animals have no stomach. Strictly speaking, then, an infant has no stomach at birth, as it does not secrete pepsin and hydrochloric acid, but a dilated sac that develops into a true stomach during the suckling period.

It is impossible to make experiments with human milk and the digestive juices of infants, but it is possible with cow's milk and a calf's stomach.

During the time the calf is receiving colostrum from the cow it has little gastric secretion, but as the mammary secretion changes into milk, the secretion of rennet commences in the calf's stomach and is plentiful when the milk flow is established in the cow. We find the action of rennet derived from a calf's stomach is to convert the casein of cow's milk into a solid which occupies the same volume as the milk did. Later on the secretion of pepsin and hydrochloric acid takes place in the stomach.

During the past year, Van Slyke and Hart⁵ have shown that after para-casein or curd has been formed by the action of the rennet on the milk, the curd combines with acids to form definite salts as mono or dichlorid, or lactate of paracasein, which is the first step in the process of gastric digestion, the pepsin then attacking the combination of the curd and acid; but, before the acid has combined with the curd, the pepsin does not act, digestion being entirely intestinal. This has also been observed by Babcock, Russell, Vivian and Hastings.

The tough, semi-fibrous curds of cow's milk are a combination of paracasein or rennet curd, and acid. Woman's milk, with rennet and acid, curds in loose flakes and I have never seen it act in any other way, even when strong rennet solution was used, with dilute hydrochloric acid, to faint acidity to litmus.

During the time an infant or calf is normally suckled there is developed a true stomach; that is, glands that secrete pepsin and hydrochloric acid are developed. Then the milk supply naturally fails and teeth and salivary glands develop.

During the process of mammary development we find that at first the young animal receives readily absorbable food, colostrum; as the mammary secretion changes into milk the motility of the stomach is developed by the milk changing into a soft solid

which can easily pass into the intestine and which is the prototype of chyme. As the pepsin and hydrochloric acid begin to be secreted, the milk curds are toughened by the acid, and the pepsin then attacks them. By the time the teeth appear, the functions of the stomach are so well developed that the young animal can eat and digest with its mother. The milk of each type of animal curds in such a way that it will develop the motor and digestive functions peculiar to that type of animal, and it is for this purpose that the proteids, which produce the curds, differ. From these facts, which I think are well established, it seems to me some valuable principles can be deduced, which will tend to simplify the teaching of infant feeding.

(1) An infant undergoes three stages of development and nutrition: (a) Pre-placental. (b) Placental. (c) Mammary: and should be looked upon as attached to the mother in all three.

(2) At the beginning of the mammary stage, an infant has only the rudiment of a true stomach.

(3) During the period of mammary development, the mother first changes the character of the infant's nourishment from colostrum to milk, and then the infant's digestive secretions so change the character of the milk, that, as the digestive juices increase in quantity and strength, the work of digestion is not thereby lessened, but rather increased, as the stronger the gastric juice becomes, the tougher the milk curds become, owing to the acid combining with the curds.

(4) The milks of all animals will produce good tissue. They differ in composition according to the rate of growth of the young animals. Their proteids differ in accordance with the type of digestive tract they are to develop.

(5) No known method of procedure will convert cow's milk into human milk. All methods of artificial feeding must have in view the production of food that will adapt itself to the developing digestive tract. All substances aside from breast milk are foreign to the infant's digestive tract, and may at times cause disturbance.

(6) In artificial infant feeding, certain minimum quantities of digestible proteid, fat, carbohydrates and mineral matter are needed. The mean composition of breast milk will serve as a general guide to the nutritive requirements of infants.

(7) Milk must be the basis of an infant's food, not alone because it contains animal proteid, but because it contains the only

available form of proteid that possesses the function of developing the digestive tract.

(8) The proteid of cow's milk, which was intended to develop a calf's stomach to digest grass, must be modified or adapted to the infant's stomach.

(9) This may be done by chemically or mechanically altering the character of the curds, by diluting milk with either alkalis or gruels.

(10) When, for any reason, a sufficient quantity of proteid of cow's milk cannot be given, it must be supplemented by other forms of nucleo-albumins until the normal quantity can be digested. It is a gross error to feed too low proteids of milk simply to overcome indigestion.

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DISCUSSION.

DR. ROTCH.—I think Dr. Chapin should be congratulated on this very laborious work and the way in which he has treated the subject.

The infant may not have the stomach of an adult but it has a stomach when it is born and the milk should be made to approach as nearly as possible in its proteids to what we get in human milk, where we have a large proportion of the whey proteids and a small amount of caseinogen. I have found it a great advantage to use what are called the split proteids, namely, various combinations of the whey proteids and of caseinogen. As to the colostrum, the idea has been growing more and more that it is an abnormal condition and that it has not been put there for any special purpose.

DR. KOPLIK.—I think the point made by Dr. Chapin is very well taken, although it has been made many times before. Hammarsten has pointed out that the casein of cow's milk is certainly not the same substance as casein of woman's milk. Although I am a great admirer of the whey method of infant feeding, and wish it could be made more practical, yet after you have your whey and your proteids, you have added caseinogen of cow's milk in order to bring the amount of caseinogen to equal that of human

milk. In other words you are working with caseinogen foreign to the infant's stomach.

DR. ROTCH.—Of course, we use good woman's milk when we can get it; but when we cannot get it, I do not see why we should not use the next best substitute simply because it differs in a certain degree from human milk. I personally have found the various combinations of the whey proteids and caseinogen very useful and satisfactory. We know that the caseinogen is not the same in cow's and human milk, but we should use it, as it is practically the nearest approach to human caseinogen which can be obtained.

DR. CHAPIN.—I am afraid that the difference in the chemistry of the proteids might form a difficulty. Recent experiments show that the nucleo albumin builds tissue and also plays an important part in developing the digestive tract, according to the baby's future diet. While this feeding is an excellent thing for general use, I do not think it is safe to feed babies this way constantly; it is certainly not according to the teaching of physiological chemistry and neither is it according to clinical experience. I use it but I do not use it constantly.

My point in preparing a paper of this kind was not to say that cow's milk should not be used, but simply to point out in strong light where the difficulties lie in the proteids, and our future study must be along the line of the proteids. I wished, also, to show that we should devote a great deal more attention to the mammary gland, and try to keep our babies on the breast in every way possible. I think all of those who have worked along this line come back to that point. After all our investigations we cannot improve upon the mammary gland in the function it has to perform, not only in giving the food principles in right proportion, but in developing the digestive tract of the infant for its future diet.

Treatment of Infantile Epilepsy. — Méry (*Jour. des Praticiens*, Vol. XVI., 1902, p. 153), in discussing the treatment of infantile epilepsy, states that when the attacks are preceded by an aura they may sometimes be prevented by the application of a ligature or blister on the part which is the seat of the aura. When the attacks follow each other in rapid succession, an active purgation, by relieving cerebral congestion, at times lessens the severity of the attacks. These procedures, however, are only palliative. To prevent the return of the attacks, potassium bromid gives the best results, especially when the chlorids in the diet are lessened to about two-thirds of the normal amount. The average dose of potassium bromid for a child is from thirty to seventy-five grains daily, although this may be decreased when the chlorids in the food are diminished.—*American Medicine*.

ACETONE AND DIACETIC ACID AS A CAUSE OF PERSISTENT RECURRENT VOMITING OF CHILDREN.

BY EDWARD L. PIERSON, M.D.,

Salem, Mass.

The causation of cyclic or recurrent vomiting in children being practically unknown, a few remarks in regard to the presence of acetone and diacetic acid in the urine of such children may be of value.

Having had my attention called to the work done in this connection by Dr. D. L. Edsall, of Philadelphia, by Dr. John Lovett Morse, of Boston, and a little later by Dr. C. W. Townsend, I have, during the last year, carefully examined the urine of my patients with this disease and have found the diacetic acid present either just preceding or in the early stages of an attack in 3 cases. The history of these cases is as follows:

CASE I.—Boy three years old. He has had a number of previous attacks during the preceding ten months. In these attacks he would vomit at fifteen to thirty minute intervals during the greater part of three days, and become greatly exhausted and emaciated. The last attack was on Tuesday, April 8, 1902. He complained of feeling sick and vomited at 6:30 in the evening. He had previously been thought very well. The temperature was taken by the rectum and found to be 103.4°F. He slept considerably that night, but began to vomit again in the early morning and continued to vomit at 9 and 11 A.M., at 1, and 3, and 4 P.M., and then every hour or half hour through the night until the next morning, and five times during that day, when the attack was over. He vomited in all about thirty odd times, the vomiting leaving him extremely prostrated and weak, although this attack was by no means as severe as some previous ones. It was after this attack that the possibility of diacetic acid being a causative agent was brought to my attention, and I began giving him bicarbonate of soda in small doses, about ten to twelve grains a day, in one dose in the afternoon. Early on Monday morning, July 14th, when he had had no soda for two days, because I had an idea that perhaps it would be well for him to leave it off once

in a while, he waked up and suddenly vomited at 7 and again at 10 A.M. He vomited five times during the next twenty hours and five times more during the next twenty-four. This ended the vomiting in this attack, and at no time did the stomach approach the degree of intolerance usual to him in such attacks. The temperature was 99.4°F. at the time of the first vomiting, and the urine was noticed to have a sweet smell. This same odor had been noticed by the mother in most previous attacks. The urine was examined at the earliest possible time and found to contain acetone and diacetic acid in abundance. The administration of soda was begun early and kept up all through this attack, both by mouth and rectum, but almost all was expelled from the rectum and it was only partially retained by the stomach. I have repeatedly noticed that the stomach will tolerate the soda solution (which I always give dissolved in whey made from skim milk) when everything else will be immediately vomited.

Being impressed with the fact that for twenty-four hours preceding this attack, as in all previous attacks, the temperature had gone up to about 100° or 101° F., I felt that if soda enough could be given during the twenty-four hours before the vomiting began an attack could probably be aborted, if a watch were kept on the temperature as a guide.

Bicarbonate of soda was now given daily in sufficient amount to keep the urine neutral or slightly alkaline, milk of magnesia given in small doses to regulate the bowels, and the temperature was taken twice daily in the rectum.

On Friday, August 8th, the temperature at bed time was 99.8°F. He was restless and did not care to take his drinks and gagged several times.

I tested the first specimen of urine to be obtained, which was passed at 3 A.M., and found it alkaline in reaction and a small amount of acetone present, but no diacetic acid. Another specimen was tested at 7 A.M. Saturday and showed a less amount of acetone. The temperature at this time was 100°F., and pulse 120. He had over 100 grains of soda during the day and the acetone had nearly disappeared on examination at night and no trace of any was found on Sunday morning.

The stomach immediately quieted down and the temperature fell to normal. All the usual symptoms pointed to an attack and in my opinion the comparatively large amount of soda, by neutralizing the diacetic acid prevented the development of the attack.

On September 10th, the temperature again became somewhat elevated, nervous symptoms appeared and there was slight headache. He was stupid and slept a good deal and woke only to gag. Nourishment was refused. The soda was increased and in twenty-four hours all symptoms had passed off. In this attack I was not present to examine the urine.

Several attacks have been similarly aborted, and it is now eleven months since he has vomited, whereas in the previous ten months he had had numerous, severe and prolonged attacks.

Although these attacks are usually supposed to come without warning, and in children previously well, in my opinion, there is a period of twenty-four hours in which many signs appear, if one looks for them. First, the urine becomes very acid, or, if bicarbonate of soda is being regularly given and the urine has been neutral or alkaline, it becomes acid in spite of the continued use of the alkali in the usual doses. Although diet will not control the attacks, if the stools are watched, it will usually, or very often at least, be seen that they change in character and become fermented and spongy in consistency, and have a sour or fermented smell.

Then, too, I have noted a group of nervous symptoms, the child showing some unusual trick, such as continually twitching the eyelids, at another time stammering, and again sucking the fingers, all things not usual when in health. Also, a little later, when the attack is beginning, a stupid or mildly comatose state develops and at times headache is complained of. If no alkali is being used, a sweet smell to the breath has often been noticed by the mothers, and also the same odor in the urine, and very often the child does not eat with the usual relish.

CASE II.—R. B., girl, aged seven years. She has had attacks at varying intervals for three years, usually having an attack every two to three months. This child had as many as eight attacks in a period of fifteen months, and her general condition became very poor. She came of a family in which both the rheumatic and neurotic elements were very marked on both sides, but all treatment based on these lines was entirely without any benefit in stopping or mitigating the disease. A long summer in the country, however, so built her up that she went a period of eleven months without any outbreak, but when the attacks came back they reappeared with their usual frequency and her former state of poor digestive function became the rule again. On November

6, 1902, she was taken sick in the evening, having seemed previously fairly well. The temperature was slightly elevated, and vomiting began abruptly. She vomited eighty-seven times in the next forty-four hours. All the symptoms of thirst, restlessness, great intolerance of the stomach and emaciation were present. The convalescence was unmarked.

On November 29, 1902, the child waked up with two or three loose movements of the bowels, and soon began to vomit. In this attack she vomited fifty-two times in thirty-seven hours and the prostration was extreme, as she had by no means recovered her strength after the attack three weeks before. The other symptoms were the same as in previous attacks. The urine was examined early on the first day and acetone and diacetic acid found in marked amounts. I now began giving bicarbonate of soda regularly three times a day, about ten grains to a dose.

Early in February the customary symptoms of an impending attack appeared, including a certain recognized color and facies, a peevish state, and sudden lack of appetite, with a rise in the temperature. The soda was immediately increased to over 100 grains a day and the urine examined, but no diacetic acid was present as the urine was then very alkaline; but I believe this would have been a genuine attack, if the soda had not been at once largely increased in amount. Since that time the temperature has been taken by the rectum every day, on any rise the soda has been increased, and no further attacks have occurred up to the present time, now nearly five months. The average amount of soda given daily in this case is about forty grains, divided into three doses, and milk of magnesia is used regularly to combat the tendency to constipation.

CASE III.—A girl aged three years. The mother says she has attacks about every three months, when she gets feverish and vomits at frequent intervals for two days. A peculiar sweet smell to the breath has always been noticed at this time by the parents. When I saw the child she had just started on an attack and was vomiting at short intervals. I examined the urine and found acetone and diacetic acid both present. There was not much to be done at this time, but I prescribed soda to be given in future at any signs of an approaching attack, and the mother now says she has prevented the development of the vomiting in two instances.

In these 3 cases there is no question but that attacks have been

prevented, and also that acetone and diacetic acid were present in the urine before, or in the very early stages, of an attack.

It has seemed to me at times as if the system acquired an increased susceptibility to the acid intoxication, smaller amounts producing symptoms the longer the child had the disease.

As regards diet not much that is definite can be said, but it seems very probable, as Dr. Edsall says in his article on this subject, that in the cases where acid intoxication is found, this acid is due to digestive changes rather than errors in metabolism; as we can generally detect abnormalities in the digestive tract preceding the attacks. As a rule, fats are not very well taken, except fresh butter, and a too large predominance of carbohydrates I have found also tends to produce the digestive changes which favor the production of the acid. If an attack is imminent, I stop giving milk at once, as I find the increased acidity tends to curdle it and precipitate the vomiting. I put the child at once on whey, which also acts as a diuretic, and rusk, giving also a little scraped beef, and increase the soda to at least 125 grains in the twenty-four hours. This diet with the soda is kept up for two days, when the food is gradually increased and the soda diminished.

There is considerable loss of strength after these aborted attacks, even if there is no vomiting, much more than can be accounted for by the decrease in the diet for two or three days.

In a fourth case, not seen by me, but whose history was told me by the attending physician, I advised the use of the bicarbonate of soda with the result that the child has had no more vomiting, but unfortunately in this case, no examination of the urine was made.

On the Etiology of Dysentery.—Rosenthal's (*Deut. Med. Wochenschr.*, February 5, 1903) bacteriological investigations of dysentery were carried out in Moscow on 85 typical cases. In all cases he was able to secure cultures of bacilli identical with those described by Shiga. The blood and urine were found sterile in every case. Staphylococci were found in the pus in one case of postdysenteric suppuration of the knee joint. Agglutination reactions were positive and specific. The author was unable to produce dysentery in animals with these bacilli. He reports one case in which there was a dysentery-bacillus septicemia—the only instance in which this was found.—*Philadelphia Medical Journal*.

A SEVERE CASE OF CHOREA COMPLICATED BY PNEUMONIA.

BY C. F. JUDSON, M.D.,
Philadelphia.

While most cases of chorea run a mild course, occasionally we encounter a severe manifestation of the disease in which the prognosis may seem for a while, at least, unfavorable. Yet it is not often that we hear reports of fatal cases in this country. In France, on the other hand, chorea has a mortality of from 2 to 3 per cent., according to the statistics of Dieulafoy and Guillemet. The fatal result may be due to pulmonary complications, to heart disease, to abscesses and resulting septicemia, following abraded wounds of the skin, or simply to the severity of the uncomplicated chorea. Charcot found the mortality greatest in girls between the ages of twelve and fourteen. Death usually results from visceral complications, except at the age of puberty, when it may be due to the chorea pure and simple. Dieulafoy says that many fatal cases are afflicted with a true choreic psychosis characterized by delirium, maniacal agitation, and hallucinations. In a large number of fatal cases followed by autopsy collected by Osler, the prevailing lesions found postmortem were endocarditis, pericarditis, pleurisy, pneumonia and septic inflammatory processes.

The case which is here reported was of exceptional severity, with marked psychic manifestations. It ran a course of seven weeks, complicated by endocarditis, pleurisy and pneumonia, and showed marked toxemia from the prolonged course of the infection.

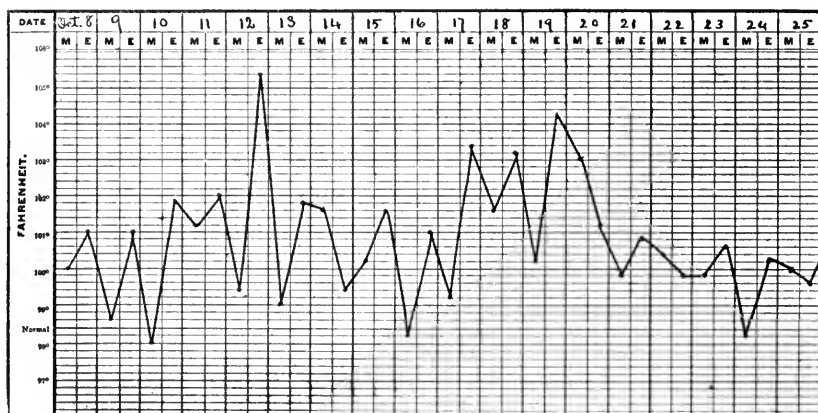
Mary Fink, aged thirteen, was admitted to the Episcopal Hospital October 8, 1902, and discharged November 15, 1902. There was no history of nervous disease in her parents or their families. She had had the measles and pertussis in infancy. Her first attack of chorea was at the age of nine. She recovered in three months. Her second attack of chorea at age of eleven, following fright, was associated with inflammation of the ankle joints and of the feet, and endocarditis of the mitral valve. She had had repeated attacks of quinsy. She had not menstruated.

Three weeks before admission to the hospital she felt a slight sore throat, two days later pain in the back, followed by nausea

and vomiting. The vomiting continued all next day, the temperature rose several degrees and a severe enteritis ensued. The stools were frequent (eight or ten a day), small, containing curds and mucus. The fever was continued, and the persistent diarrhea suggested typhoid fever to the attending physician. By the end of one week the mouth began to twitch. Articular manifestations set in, pain extending from one joint to another. Only the large articulations were affected. The choreic movements soon became general, the irregular fever continued, and the diarrhea was not controlled. Dyspnea and palpitation became marked by the end of the second week, and the violence of the spasms rendered sleep impossible.

On admission, three weeks after the onset, the child presented a distressing picture. Choreiform movements were almost incessant, the eyes rolled constantly, the mouth was drawn to the right, inarticulate cries were uttered from time to time, and the back was arched occasionally. Wasting was evident; the tongue heavily coated, the pulse rapid and irregular, dyspnea marked; a loud mitral systolic murmur was heard at the apex. The heart was moderately hypertrophied; the lungs clear. The abdomen was moderately distended. There was no swelling or redness visible around any of the joints, nor could any pain be elicited on motion. The skin was dry. Urinalysis was negative, also the Widal reaction. There was a leukocytosis of 15,000; the temperature was 100°F., pulse 100, and the respiration 28. Rest in bed, moderate stimulation, antipyrin, bromids, and quiet surroundings were prescribed; also various hypnotics, but with little benefit. The child slept only a few hours in spite of vigorous medication. Bromids and morphin failed utterly; hyoscin was more efficacious in procuring sleep. On the fourth day after her admission the choreic movements became more violent and almost incessant, large brush burns developed on the dependent portions of the body, the temperature rose rapidly to 105°F., and remained high, the heart became dilated, respirations very rapid, and the intense toxemia made the child's condition for three days very alarming. The tossing and arching of the back made careful physical examination out of the question. Stimulants were given freely, and on the seventh day after admission the choreic movements lessened in severity and frequency, after a night of sound sleep. On examination heart dullness extended from one inch to the right of the sternum to the anterior axillary line, and

from the third rib to the sixth interspace. There was a short rough systolic murmur heard loudest at the apex. The impulse of the heart was diffuse. In the fifth, sixth and seventh interspaces over and below the apex beat was felt a coarse friction fremitus, and in the same area a rough creaking murmur was heard like the friction of leather. These signs were sometimes, but not always, synchronous with the heart's systole, they were accentuated with each inspiration, and were inaudible over the base of the heart. Physical signs indicated consolidation of the lower lobe of the left lung, over which the breath sounds were distant but not purely bronchial; there was evidently a pleuritic exudate

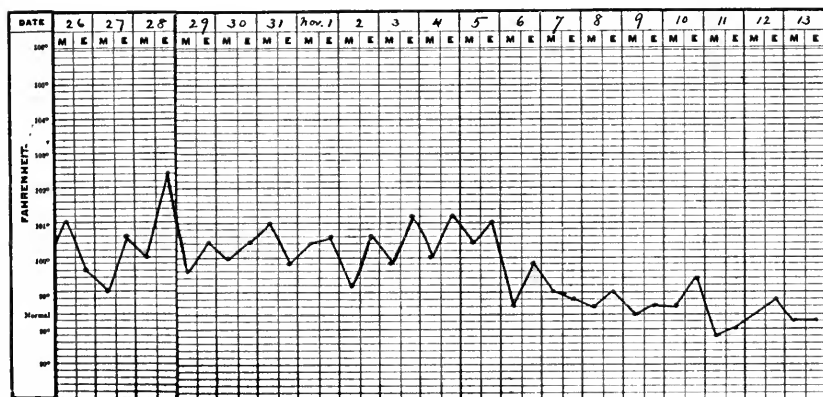


TEMPERATURE CHART OF CASE OF SEVERE CHOREA.

covering the anterior surface of the left lower lobe. The child ceased her inarticulate cries, and was able to answer questions, complaining of pain in and behind the left ear. Her general condition was improved, pulse and respiration less frequent. Her urine showed a faint trace of albumin. Cultures from the blood were negative. The abdomen was distended, and the stools contained undigested milk. The throat showed a marked pharyngitis; cultures taken from the sputa showed a few pneumococci.

During the next five days the temperature was irregularly elevated. The pneumonic inflammation, which was evidently a bronchopneumonia of a wandering type, extended to the upper lobe of the left lung, and the lower lobe of the right lung. The bronchi became filled with mucus which was not expectorated. On the twentieth of October, the twelfth day after admission, and

the fifth week of the disease, pleuritic friction was audible over the lower lobe of the right lung anteriorly. There was tenderness about the right elbow joint, and on flexing the right knee grating was felt in the tendon sheath of the inner hamstrings. The leukocytes were 24,000. Antirheumatic treatment was instituted with small doses of salophen, with immediate good results. The process of resolution in the lungs was slow, but gradually the lungs cleared, the dilation of the heart gave way to hypertrophy, the abdominal distension lessened, and the stools became formed; the leukocytosis, which had reached 33,000, fell to 16,000 on the twenty-ninth of October. On November 7th the child



TEMPERATURE CHART OF CASE OF SEVERE CHOREA.

was able to sit up in her chair, she was ravenously hungry, her irritability had quite gone; muscular weakness and atrophy were marked. On November 15th she was discharged. The lungs were then entirely clear, and the only heart lesion demonstrable was a well-compensated mitral regurgitation.

The points of interest in this case are: (1) The sudden onset of the disease with symptoms denoting a severe general infection, gastroenteritis, fever and pain in the large joints. (2) The development of the choreic movements one week after the original infection, subsequent to the arthritic manifestations. (3) The course of the disease with continued irregular fever and enteritis. (4) The slight manifestations of disease in the joints and the marked involvement of the heart. (5) The extension of the infection to both lungs and pleuræ. (6) The diminution in

severity and frequency of the choreiform movements when the pneumonia was at its height. (7) Improvement under anti-rheumatic treatment.

Rheumatism is associated with chorea in from 18 to 20 per cent. of all cases, says Osler in his monograph on chorea. The arthritis may precede the chorea, or may not develop till its subsidence.

In the case here reported there was a previously existing lesion of the mitral valve following an attack of chorea. There had been frequent attacks of quinsy. When the child was first brought to the hospital it was impossible to get a clear history of rheumatic infection from the distracted parents. There were no chills nor was any sweating observed during the child's stay in the hospital, neither were the signs of involvement of the joints sufficiently marked to justify the diagnosis of acute articular rheumatism. It was not until the fifth week of the disease that the recurrence of rheumatic phenomena, and the presence of pleurisy suggested a trial of the salicylates. The disease, which had already mitigated in severity, took a favorable turn at that time and went on to recovery at the end of the seventh week. We know to be sure that moderately severe cases of chorea get well as a rule in seven to eight weeks' time. In this case the child made a good recovery in spite of the severe complications, and I believe that the rest in bed and the careful nursing contributed much to the successful result.

The bacteriological examinations showed the presence of pneumococci in the sputa. There was no pathological fluid exudate in the joints or pleuræ, so that it was not possible to determine whether there was a general pneumococcus infection. The fact is worth noting that with the invasion of the lungs by the infection the choreic movements became decidedly less in violence and frequency. It has been observed in connection with the acute exanthemata that when they develop in the course of chorea the choreic symptoms are often checked (Rilliez and Barthéz). Radcliffe (Reynolds' System of Medicine) writes that in his experience "the constant rule seems to be that the chorea is aggravated in the initial stage of the fever and suspended more or less completely when the hot stage or stage of reaction is established." West has also reported the case of a child of ten with chorea in whom the onset of typhoid fever checked the movements.

In conclusion, we have here to do with a case of general infection, in a child of rheumatic habit, manifesting itself primarily as Sydenham's chorea, and involving successively the joints, the heart, the lungs and the pleuræ, running a course of seven weeks, terminating in recovery, and leaving behind a regurgitant, fully compensated, lesion of the mitral valve. The case is reported because it bears out the theory that chorea is an acute infectious disease.

Congenital Multilocular Cysts of the Kidneys.—Boinet and Raybaud (*Rev. de Med.*, January 10, 1903) report a case of congenital multilocular cysts of the kidneys in a male child, aged forty-two days. The child died after a generalized convulsion. The right kidney was completely cystic, while in the left kidney the cystic change was noted at the lower pole of the organ only. After an extensive review of the literature the authors conclude that all cases of congenital multilocular cysts of the kidneys cannot be referred to a single type of which the pathogenic explanation can be found in any one theory.—*Philadelphia Medical Journal*.

Heredity in Syphilis.—In a long and interesting article Matzenauer (*Wien. Klin. Wochenschr.*, February 12, 1903) reviews the subject of the heredity of syphilis. Immunity to syphilis is not hereditary. While no doubt exists that a mother can and does transmit syphilis to her child, the transmission of the disease from the father through the spermatozoa has never been proved. To explain the fact that a mother, apparently healthy, should have a child with hereditary syphilis, the mother herself must be syphilitic, though the disease seems latent in her. Thus, syphilis, to be hereditary, must come from a syphilitic mother. Therefore, the mother of a syphilitic child should undergo mercurial treatment, even though she has no symptoms. She can nurse her own child without danger. Besides, syphilitic parents can, possibly, infect their healthy children. A man with syphilis, in order not to infect his wife, should not marry for several years after infection and not without having undergone repeated mercurial treatments. The literature is fully cited.—*Philadelphia Medical Journal*.

PHARYNGEAL CROUP RELIEVED BY NASAL INTUBATION. (SOFT RUBBER TUBES.)*

BY W. P. NORTHRUP, M.D.,
New York.

It happens to all to find infants breathing with great difficulty, because of acutely swollen tonsils and pharynx. Obstruction resulted in the case here related in dyspnea, which prevented the baby from nursing and from sleeping and had exhausted it to the point of threatened collapse. To quote the words of the hospital history: "Dyspnea urgent; child greatly exhausted; unable to sleep on account of dyspnea, although completely worn out."

The present case furnishes a familiar picture to the intubationist: Dyspnea urgent; recessions; a cyanotic, leaden color; stupor, restlessness, a sinking off to sleep, apnea, sudden starting, inspiring by voluntary effort, gasping, sinking again into unconsciousness.

It was evident that the child could not live long. There were the recessions of laryngeal obstruction and the familiar signs and symptoms calling usually for intubation. In this case the acute swellings of the tonsils and pharynx made it apparent that unless air could be conducted to the larynx nothing would avail from intubation. The main point in differentiating pharyngeal from laryngeal obstruction was the fact that the child when awake could open its throat by voluntary effort and relieve the obstruction. The nares were swollen quite shut, the pharyngeal tissues were so swollen that in sleep they fell together and left no room for entering air.

Nothing exhausts a child more rapidly than the combination of fever, lack of nourishment, loss of sleep and dyspnea. Unless its breathing could be made easy, this child had but a few hours of life in prospect. How was this to be accomplished? Answer: by tracheotomy or other means less heroic.

Case under consideration: A baby of five months, breast-fed, well nourished, well until present illness (December 16, 1902, Foundling Hospital); had been sick two days before entrance to

* Read at the meeting of the American Pediatric Society, Washington, D. C., May 12, 13, 14, 1903.

hospital; had difficulty in nursing. On entrance: a profuse mucopurulent discharge from nose; grayish-white spots of exudate, probably diphtheritic, on both tonsils. Tonsils much congested, enlarged, meeting in median line; could breathe only with great effort. Besides the swollen tonsils, there were signs of bronchitis, coarse mucous râles and harsh breathing. After syringing the mouth, the baby nursed for the first time that day. During the following day it did not sleep and was nearly exhausted. Dyspnea was urgent; syringing of mouth and nose gave no relief. Nose was more obstructed than on previous evening; recessions very marked; steam inhalations gave temporary relief. At rounds on the following day, it was evident that dyspnea would soon completely exhaust the infant. There was obstruction, but it was not laryngeal. It was believed that intubation would not relieve the symptoms; tracheotomy was considered to be the only avenue of relief.

It occurred to me that air conducted past the swollen velum and tonsils would get to the larynx behind these tissues. As this was our first effort in nasal intubation, we were obliged to experiment. Two firm-walled bits of drainage tube, about the size of the small catheters used in nasal gavage, were selected. The tissues in the nose were so swollen and filled with mucopus that it seemed rather doubtful whether such small calibred tubes would resist the pressure and free themselves of mucopus, and would conduct air so far as to the larynx. At first they did not. After a short pause, bubbles of air came from the outer end of one tube, and soon the baby seemed a trifle relieved. By pushing the other tube in deeper, then slowly withdrawing it, we found the proper length of tube; two inches was about the length. To our satisfaction the baby soon sank into a quiet sleep of one hour and twenty minutes. It then nursed for twenty-five minutes, seemed quite relieved and doing well. That night it slept seven hours.

On the following day, the tubes were removed, and remained out from 10:15 A.M. till 5 P.M. At this time, dyspnea required their reinsertion. The baby slept two and one-half hours. When the ends of the tubes were pinched and occluded the child awoke at once, cyanosed. While the tubes were in place and pervious, the child slept or nursed. The baby subsequently developed pneumonia, from which it died. The slight exudate on the tonsils was found to be due to bacillus diphtheriæ.

RÉSUMÉ.—An infant five months old, after two days of illness

developed such a severe condition of swollen membranes and enlarged tonsils, with nasopharyngeal obstruction, that it could not nurse, could not sleep. Exhaustion threatened; tracheotomy seemed the only resource. Nasal intubation with soft rubber tubes relieved the dyspnea, the child slept seven hours and nursed twenty-five minutes. The tubes were stiff-walled drainage tubes, two inches long. The infant later died of pneumonia, but intubation had fulfilled its function; it had tided the infant past the acute stage of pharyngeal swelling.

All intubationists have been called to intubate children who seemed to be developing croup, but who subsequently developed pneumonia. When I look back over my experience, I am sorry that I did not think to try, before, this simple method of relief of pharyngeal croup.

It is of passing interest to note that this nasal intubation was carried out at my suggestion by the present house physician of the Foundling Hospital, the son of my late colleague, who bears his father's name, Dr. Joseph O'Dwyer.

A New Method of Isolating the Tubercle Bacillus from Body Fluids.—Under the term “inoscopy,” A. Jousset (*La Sem. Med.*, January 21, 1903) describes a method of isolating organisms from body fluids, based on the observation that if the liquid be coagulated most contained organisms are caught in the meshes of the clot. If the fluid to be examined is noncoagulable, such as urine, a clot is formed by the addition of a prepared blood serum. The blood of the horse is used, being diluted with an equal quantity of 10 per cent. salt solution, and then centrifuged. The supernatant serum is added to the liquid to be examined, and coagulation occurs. With a fluid that is spontaneously coagulable this procedure is not necessary. The clots are collected on a filter; washed with distilled water, and then digested at 38° C. with 10 cc. to 30 cc. of the following artificial gastric juice: pepsin, 1 to 2 gm.; glycerin, 10 cc.; hydrochloric acid (22° Baumé), 10 cc.; sodium fluorid, 3 gm.; distilled water 1,000 cc. When digestion is completed, the liquid is centrifuged and the sediment is examined for microorganisms by the ordinary methods. This method is especially valuable for the demonstration of tubercle bacilli, but may be used to recover any suspected organism from fluid.—*American Medicine*,

O'DWYER INTUBATION INSTRUMENTS. ADDED
SMALL TUBES FOR INFANTS UNDER
ONE YEAR. EXHIBITION OF MOD-
ERN COMPLETE SET.*

BY W. P. NORTHRUP, M.D.,
New York.

My purpose in presenting this subject and these instruments to the American Pediatric Society is to familiarize the members themselves with the appearance of the latest and best O'Dwyer tubes, so that when a spurious set comes before them, they may recognize it.

There are two kinds of intubation tubes offered for sale to the inexperienced. There are O'Dwyer's tubes and there are maker's tubes. Those I have to show you are O'Dwyer's tubes. The tubes themselves conform exactly to the model which O'Dwyer left us. These tubes are O'Dwyer's tubes with one or two added mechanical aids, worked out by his instrument maker and approved by the pupils of O'Dwyer.

They are, first, the fixed obturator. Instead of the obturator being screwed to the shaft of the handle just before it makes its right angle turn, it is continuous with the shaft. Each tube, as it lies in the box, has its obturator and shaft continuous. The obturator is short; the shaft bent at right angle is twice as long. In changing one tube for another the tube, its obturator and shaft go together. The shaft passes into a hollow handle and is caught and held by a thumbscrew. The object of all this will be quickly appreciated by an experienced intubationist. The tube will no longer (as has so often happened) turn at the screw and enter the larynx crosswise. This fixed (not unscrewing) obturator constitutes a real improvement, and no one would appreciate the suggestion more than Dr. O'Dwyer.

The second improvement.—Two new sizes of tubes are added for babies under one year. It occasionally happens that one wishes, in severe dyspnea, due to catarrhal swelling or in protracted, frequent and severe paroxysms of whooping-cough, to give temporary relief by intubation. Convulsions in whooping-

* Read at the meeting of the American Pediatric Society, Washington, D. C., May 12, 13, 14, 1903.

cough may suggest temporary intubation. These two smallest sizes have been added to the sets at the Willard Parker Hospital, and at the Foundling Hospital. I have the small sizes and a set has been ordered by Prof. Massei, of Naples.

George Ermold, the instrument maker who made all of Dr. O'Dwyer's tubes, has made this set and another is ordered, at my suggestion. It contains all the improvements and is complete.

As I have stated, my object in presenting these instruments is that as many as possible may become familiar with the appearance of the O'Dwyer's tubes. In my opinion most of the tubes for sale in America, France and England are calculated to bring discredit upon the operation. I call upon the members of this Society, for the sake of protecting the repute of a most useful operation and one emanating from one who was an honored president of the Society, to do all in their power to encourage the use of O'Dwyer's intubation tubes. They are made by but one man.

The faults of maker's tubes are in the shape and finish of the tubes themselves. First, they do not fit the anatomy of the parts. Second, their lower ends injure the trachea. Third, their bulge is different and in this respect they differ from each other. Fourth, the collar and the top are worst of all. They do not fit the parts and cause pressure ulcers. All hooks and bales for facilitating removal, induce accumulations of thick mucopus and obstruction, beside causing ulcers.

It is enough to say of these tubes they are born of economy in making, of ignorance of anatomical relations, and of ignorance of pathological changes.

O'Dwyer's tubes were worked out through dead-house observations; maker's tubes were worked out in the shops by mechanics. O'Dwyer would not patent them and so protect them. Mechanics labor under no restraints. To manufacture cheap tubes to suit instrument sellers is an easy task. You will note that metal in the tubes is the maker's choice. Hard rubber is the choice of O'Dwyer. Hard rubber tubes involve a large initial outlay for steel moulds. A badly fitting tube of metal, incrustated after three days of wearing with lime salts, yielding to the motions of swallowing, embedding itself more and more in tissues swollen and diphtheritic, may cause much destruction of tissue.

Good results in intubation depend upon good tubes and good technique.

DISCUSSION ON DR. NORTHROP'S PAPERS.

DR. MORSE.—Three years ago I saw in consultation with Dr. F. C. Cobb, of Boston, a baby two and a half months old with syphilitic rhinitis. The baby was in the condition described by Dr. Northrup and had a temperature of 104° F. It seemed very doubtful if the baby would live through the night. Dr. Cobb introduced soft rubber tubes into the nose in the way described by Dr. Northrup. They undoubtedly saved the baby's life. I have also found that in this nasal obstruction in babies an adrenalin solution usually relieves them temporarily, and sometimes tides them over a critical period.

It seems to me that there is room for an improvement even in this intubation set, and that is in the extractor. I have found in working upon infants that there is not room in the roof of a baby's mouth to get the extractor in properly. It is impossible to get the end of the extractor in line with the tube. It is always at an angle. I therefore had an extractor made with a shorter beak which does not take up quite so much room, and allows more space to work in. This has proved satisfactory.

DR. KOPLIK.—I think this is a very interesting communication of Dr. Northrup's. I would like to call attention to the fact that in young infants, if there is any nasal obstruction, the child has a tendency to swallow its tongue, even if no inflammatory process be present.

I have also tried the adrenalin solution Dr. Morse has referred to, and have obtained some relief. Some physicians have gone as far as to take out the tonsils in sick children suffering from pneumonia with a temperature of 104° F., an operation that one would hesitate to perform under ordinary circumstances, and for this reason I am very much pleased that Dr. Northrup has brought forth such a simple method of relieving the child.

As to the new form of intubation tubes, I have used the perfected instrument with the exception of the small tubes, ever since they have been out. They are certainly a great improvement over the old tube.

DR. CHAPIN.—I would like to call your attention to the fact that quite a number of years ago a specialist in New York, Dr. Goodwillie, devised a tube of flexible rubber which he made to fit in the inferior meatus. I have tried these tubes in a few cases, but never in the line that Dr. Northrup has suggested.

DR. DORNING.—I would like to ask if there is any objection to the little loop of wire on the top of some of the intubation tubes that are in the market? It seems to me that it renders extraction much more easy. I have used it in a number of cases and found that I could extract the tube more easily than with the extractor.

DR. NORTHROP.—The objection to the wire loop is a very great one. It irritates the soft part of the epiglottis. There is also an

objection to the foreign-made tubes which cause holes to be eaten into the esophagus and epiglottis. You need only look at these cheap tubes to see that what I say is true. The makers do not take the trouble to make the head of the tube correctly. They say it is all nonsense; that it is the fad of the doctors who only know intubation. They say that O'Dwyer was fussy. I beg to say that if this Society would hold to the original type it would do some good.

DR. SAUNDERS.—The same extractor will not do, in my hands at least, for children of all ages, and for several years past I have carried two extractors, one short and one long.

The Frequency of Nursing.—Neumann (*Deut. Med. Wochenschr.*, October 30, 1902) reviews numerous statistics from other cities comparing the relative number of breast-fed and artificially-fed infants. They compare very favorably with those he reports from Berlin, where nature's method of feeding children is constantly being less employed. While in 1885 55.2 per cent. of children were nursed by their mothers, in 1900 there were but 31.4 per cent. In spite of this decrease in the number of nursed children the mortality from intestinal diseases has diminished steadily, thus showing the great improvement in the quality of the milk used throughout the city as well as in the city's general hygiene.—*American Medicine*.

The Phosphorous Treatment of Rachitis.—Concetti (*Allg. Wien. Med. Zeit.*, January 27, 1903) holds that more careful preparations of phosphorus should be made for the use of rachitic children. The failure of the phosphorus to be thoroughly dissolved in the oil base results in great irregularity in the size of the dose. The first dose may be merely oil, while the second gives double the amount of phosphorus desired. Failure to shake well also leaves a concentrated amount of phosphorus in the bottom of the bottle, which may cause an acute gastric disturbance, acute degeneration of the liver, or even death. Concetti's preparation is made in the following way: He dissolves a small amount of phosphorus in ether, and then mixes thoroughly with a little almond oil. To this is added cod-liver oil and the mixture is put in a water bath and heated slightly. In this way the phosphorus will be entirely dissolved, and the ether eliminated. The best proportion is 1 cc. of phosphorus to 100 gms. of cod-liver oil, to be kept in an air-tight bottle and shaken thoroughly before using. If cod-liver oil is too unpleasant, or if the stomach cannot digest it, use almond or olive oil instead. The dose should be $\frac{1}{20}$ cg. morning and evening before meals in a teaspoonful of oil, or mixed with a dessert spoonful of the emulsion.—*International Medical Magazine*.

ARCHIVES OF PEDIATRICS.

JULY, 1903.

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THE REDUCTION OF THE MORTALITY FROM DIARRHEAL DISEASES AMONG CHILDREN IN NEW YORK.

One of the facts to which citizens of New York, of all classes, but more especially medical men, can point with just pride, is the steady reduction of the mortality from diarrheal diseases. The reduction is, of course, most apparent in the tables for children under the age of five years. In the old city of New York, the present boroughs of Manhattan and the Bronx, in the year 1892, the deaths from diarrheal diseases among children under five, numbered 4,119, a ratio of 24.10 per 10,000 population; in 1902 such deaths numbered 2,936, a ratio of 13.72 per 10,000 population, a reduction of more than 40 per cent. In the opinion of the

health authorities the gradual reduction of this ratio is attributable to a number of causes, including such as a better understanding on the part of mothers and nurses of the necessity of care and cleanliness in the feeding of infants; a better milk supply; cleaner streets; the provision of pasteurized or sterilized milk through philanthropic agencies; and, finally, the establishment of small parks. In a recent study of this subject R. G. Freeman reached the conclusion that the improvement in this respect, which he found had prevailed to a greater or less extent throughout the country, was in all probability due to the general practice of sterilization or pasteurization of milk, as this was the one change in which all sections participated. In New York not a little of the improvement is due to the philanthropic efforts of various organizations to secure to the children of the poor some longer or shorter stay in the country, and, more particularly, to the noble work of St. John's Guild, whose charity enables many sick children to escape from the trying conditions of the summer in the city to the sea-side and there enjoy the best hospital care that it is possible to provide for them. In 1902 over 58,000 children and infants were carried on the boats of this organization, of whom nearly 6,000 received medical treatment; and over 500 cases of diarrheal diseases were sent to and treated in the Guild's hospital at New Dorp, Staten Island.

During June, July and August, 1902, an exceptionally cool summer, there died of diarrheal diseases in the boroughs of Manhattan and the Bronx 1,396 children under two years of age. That is, nearly one-half of the year's total deaths in children under five years of age charged to these causes occurred among infants in the summer months. Recognizing the significance of this fact the Department of Health propose this summer to take measures to prevent, at least in part, this fearful loss of life. A card index of all infants in the city is to be prepared in the headquarters of the department. The city is to be divided into districts, to each of which an inspector will be assigned, whose duty it will be to look after all the infants in his territory. He will be required to visit the homes, inquire as to the method of feeding, whether ma-

ternal or artificial, and as to the regularity of feeding, the quantity and composition of the food, etc. These visits must be repeated from time to time, and in case of illness on the part of the infant the inspector must see that the child is taken to the family physician or the inspector himself become responsible for its care. At the same time circulars of instruction on the care and feeding of children are to be sent by the Department of Health to all homes in which young children are known to be. By these means the department hopes to be able to prevent much of the usual sickness, or if the children do fall sick, to insure them the prompt attention in which lies, for the most part, all hope of recovery. That the plan is both comprehensive and wise seems perfectly clear. The results must depend upon the wisdom and thoroughness with which it is carried out. In an educational way alone it should be productive of vast good. The health department of New York has already made itself respected and famous by the vigor and intelligence of its work, so that we may look with confidence for gratifying results from this new plan to protect the people from the ravages of disease.

BRITISH MEDICAL ASSOCIATION.

The seventy-first annual meeting of the British Medical Association will be held at Swansea, July 28, 29, 30 and 31, 1903. The Section on Diseases of Children, of which W. Arbuthnot Lane, M.S., F.R.C.S., is president, and A. Garrod Thomas, M.D., P. Rhys Griffiths, M.D., and Robert W. Murray, F.R.C.S., are vice-presidents, will have the following subjects for discussion: The Pathology and Treatment of Chorea. Introduced by D. B. Lees, M.D., F. R. C. P. Congenital Dislocation of the Hip. Introduced by F. F. Burghard, M.S., F.R.C.S. Tuberculosis in Children—Its Relation to Bovine Tuberculosis. Introduced by Nathan Raw, M.D. (Professor Koch has been invited to take part in this discussion.) The following paper has been promised: Prof. Ruhrah, Baltimore, Md., The Relations of the Thymus Gland to Marasmus.

W. Langford Symes, M.D., F.R.C.P.I., 74 Merrion Square, Dublin, and F. Knight, M.D., 10 Walters Terrace, Swansea, Honorable Secretaries.

Bibliography.

The Medical and Surgical Uses of Electricity, Including the X-Ray, Finsen Light, Vibratory Therapeutics and High Frequency Currents. By **A. D. Rockwell, A.M., M.D.** Pp. xvi.-656. New edition. Illustrated. New York: E. B. Treat & Co. 1903. Price, \$5.00.

This book is an extension of Beard and Rockwell's, which was thoroughly revised in 1896 by the present author. In the new edition, six chapters have been added, in which the subjects of X-Ray Diagnosis and Therapeutics, Finsen Light, Vibratory Therapeutics and High Frequency Currents are studied, and their place in the therapeutics of electricity given.

The author believes that with the x-rays we have at our command the means of locating foreign bodies in every region of the human body. Radiographs from two points of view in fractures and dislocations are therefore essential. If, for example, the fracture is simply a slight crack, without displacement, the fluroscope will hardly reveal it; it may escape observation if only a single picture is taken. A second picture, however, will hardly fail to reveal the crack in the bone.

Dr. Rockwell states that the beneficial action of x-rays on integumental disease of cancerous character cannot be doubted. While it may not always yield as readily as lupus, many undoubted cases of genuine cures have been reported. He also believes that from its close relationship to epithelioma, rodent ulcer ought to be easily amenable to treatment.

The book has been amplified and recent literature is quoted freely. The author, although very sanguine regarding the uses of electricity, does not make undue claims, and the book as revised is the most complete and satisfactory presentation of the therapeutic value of the various forms of the electric current.

A Compend of Diseases of Children. By **Marcus P. Hatfield, A.M., M.D.** Pp. 241. Third edition. Philadelphia: P. Blakiston's Son & Co. 1903.

The opening pages of this little work contain a condensed account of the anatomy and physiology of the newly-born. This

is followed by the traumatic and physiological accidents of birth, and the early ailments and dietetics of the infant. Considering the great importance and perplexity of infant feeding, it is rather surprising that only four pages are devoted to this subject in the body of the book and ten pages in an appendix. The handling of this topic is also lacking in clearness and can hardly be considered up-to-date. Thus the statement is made that the proteids of cow's milk are not in themselves less easily digested than those of maternal milk, but that any difference is due rather to foreign matter which has been allowed to enter the cow's milk after leaving the cow. Recent investigations, on the contrary, appear to accentuate the radical difference between the proteids of these two milks. Diseases of malnutrition, infectious diseases and those of the respiratory, nervous and digestive systems are briefly considered in separate sections. The German idea in pathology and treatment seems to have been largely followed in preparing these articles. Some of the prescriptions advised in treatment have been written after the metric and others according to the apothecaries' system.

A Pocket-Book of Infant and Childhood Dietetics, with Directions for the Home Modification of Milk. By A. B. Spach, A.M., M.D. Chicago: E. H. Colgrove. 1903.

This is a book of leaflets giving general formulæ for the preparation of infant foods, with blank spaces for filling in the amounts required, and detailed directions. It has many good points and will, no doubt, be useful to busy practitioners who have not time to write out directions for preparations of barely water and gruels. It is possible, also, from the table given, to make milk modifications to suit the average child.

Lactic Acid in the Treatment of Dysentery.—According to the experience of J. D. Hunter (*La Semaine Med.*, November 19, 1902) of Arequipa, Peru, lactic acid, which has been employed in cases of infantile diarrhea, gives equally good results in cases of acute or subacute dysentery, where stools are green and viscid. In such cases the lactic acid is prescribed in doses of fifteen drops repeated every two hours, preferably in solutions with syrup or gum.—*American Medicine*.

Society Reports.

THE AMERICAN MEDICAL ASSOCIATION.—SECTION ON DISEASES OF CHILDREN.

New Orleans, May 5-8, 1903.

First Day.—Tuesday, May 5th.

CHAIRMAN'S ADDRESS: THE DEVELOPMENT AND CARE OF CHILDREN.

DR. JOHN C. COOK, of Chicago, delivered this address. He pointed out the great differences in the circulatory and nervous systems of the child and the adult, and insisted that it was the duty of the physician to carefully conserve the energies of this period of life. He then spoke at length on the child labor question, insisting that the State could better afford to support and educate children than support and discipline adult criminals, and that it was within the province of the medical profession to see to it that the child laborer should at least have proper hygienic surroundings in the workshop.

ANATOMIC AND PHYSIOLOGIC CORRESPONDENCE OF CHILD AND ADULT.

DR. WILLIAM T. ECKLEY, of Chicago, traversed a part of the ground covered by the preceding speaker. He pointed out that as continuous stimulation tended to result in exhaustion the doses of medicines intended for children should be carefully proportioned to their capacity. Idiosyncrasy, he said, was the survival in the adult of the normal susceptibility of stimulation in the child.

DR. C. F. WAHRER, of Fort Madison, Ia., in a paper entitled, IS THE STUDY OF PEDIATRICS WORTHY THE ATTENTION IT GETS, AND DOES IT GET THE ATTENTION IT DESERVES?

argued that, as more than one-half of general practice was among children and adolescents there was evident need for more thorough instruction in pediatrics in the medical schools.

ACUTE SUPPURATIVE CERVICAL ADENITIS OF INFANCY.

DR. THOMAS S. SOUTHWORTH, of New York, read this paper. He said that usually only one or two glands were affected, forming a prominent and more or less tender mass. Pointing would

occur in about two weeks, and then an incision, one quarter of an inch long, should be made along a natural fold of the skin, the cavity thoroughly emptied of pus and a rubber drainage tube, $\frac{3}{16}$ of an inch in diameter and about $1\frac{1}{4}$ inches long, should be inserted to the bottom of the cavity. On the second day the length of this tube could be reduced one-half, and in a day or two more the tube could be left out. To abort suppuration in these glands he had found it especially useful to cleanse the nasopharynx by pouring into the nose some Seiler's solution, and giving chlorate of potash internally. This treatment was most apt to be successful in infants over one year old.

Second Day.—Wednesday, May 6th.

THE PATHOLOGY OF THE SUMMER DIARRHEAS OF CHILDREN.

DR. G. W. BOOT, of Evanston, Ill., stated that there was usually but little visible at autopsy except congestion of the intestinal mucosa. Streptococcus infection appeared to be an occasional cause of infantile diarrhea. The Shiga bacillus resembled the bacillus typhosis in many respects and the mucous stools contained this bacillus at times in almost pure culture. In the more chronic cases there was some infiltration of the wall of the intestine with a diminution of the lumen.

EVERY-DAY PROBLEMS IN INFANT FEEDING.

DR. HENRY E. TULEY, of Louisville, presented this paper. He said that a newborn infant was often colicky because of an excess of proteid in the milk, a condition that would often correct itself when the mother was up and around taking her accustomed exercise and diet. Temporary relief might be afforded by not allowing the child to take the first portion of milk from the breast. He did not consider mastitis as a contraindication to nursing, as the abscess rarely communicated with the milk ducts. Condensed milk was a very useful food for infants of the poor, yet its long continuance was apt to result in scurvy and rickets.

INFANT FEEDING.

DR. ALEXANDER McALISTER, of Camden, N. J., pleaded for more individualization in the feeding of infants, and pointed out that the laity, in judging of the value of an infant food, were prone to overlook the important factor of morbidity and think only of the amount of fat the child put on.

THE INFANT DIGESTIVE DISTURBANCES.

DR. ALFRED C. COTTON, of Chicago, discussed this topic. He directed attention to the fact that statistics showed that the greatest susceptibility to summer diarrhea was between the ages of six and eighteen months, and that the clinical picture of acute summer diarrhea was that of acute poisoning of the gastrointestinal tract. In his opinion, cholera infantum was an intense gastroenteritis or a dyspeptic diarrhea associated with an unknown form of toxemia. Marked gastric disturbance was apt to be complicated by stomatitis, a serious matter because of the consequent interference with feeding and rest. As a prolonged summer diarrhea almost invariably left in its trail some evidences of retarded development, this fact should serve to emphasize the folly of attempting to adapt the hygiene of such an infant to its age instead of to its condition. The diarrheas of the exclusively breast-fed were peculiarly tractable; hence the occurrence of a severe attack in such an infant should lead to a prompt and searching inquiry as to whether the child might not have received some additional article of food. The treatment in any case must be essentially dietetic. He desired to lay all possible stress on the statement that, if a small fraction of the energy, expended in the study of artificial feeding, were bestowed upon the physiology of lactation the results would be far greater than those from modern artificial feeding, brilliant though they were.

SUGGESTIONS FOR REDUCING THE PREVALENCE OF SUMMER
DIARRHEA IN INFANTS.

DR. J. ROSS SNYDER, of Birmingham, Ala., read this paper. He declared that as summer diarrhea was dependent upon bacterial invasion, it was not only curable but preventable. It should not be forgotten that even breast milk was often contaminated by careless habits, and that even cow's milk from a model dairy was not infrequently rendered unfit for infant feeding by improper care of the milk after it had reached the household. By the establishment of milk commissions and the dissemination of knowledge among the ignorant poor, summer diarrhea in infants could be largely prevented.

OBSERVATIONS ON BREAST FEEDING FROM AN OBSTETRICIAN'S POINT
OF VIEW, WITH REPORT OF CASES.

DR. EFFA V. DAVIS, of Chicago, was the author of this paper. She said that the early application of the infant to the breast

caused the milk to come in more gradually; hence on the first day the baby should nurse every six hours, on the second day every four hours, on the third day every three hours and after that at intervals of two hours. Uncomfortable turgescence of the breasts could be prevented by having the mother wear, during the first ten days or more of the puerperium, a snugly-fitting cotton flannel breast binder. When the mother was opposed to nursing her infant the secretion of milk was often poorly established, but firmness and tact would often improve the mental state and with it the breast milk. Five exceptional cases, gathered in a large obstetric practice covering a period of twelve years, were reported to show that *occasionally*, through some idiosyncrasy, the infant was not properly nourished by its mother's milk, and that then artificial feeding was better. When a case was encountered that was suspected to belong to this category, the question should be settled by making a short trial of some substitute for the breast milk.

APHTHÆ AND HERPES CONTRACTED BY CHILDREN DRINKING MILK
FROM COWS SUFFERING FROM FOOT AND MOUTH DISEASE.

DR. E. F. BRUSH, of Mount Vernon, N. Y., showed, in this paper, that for thirty years prior to the last winter the foot and mouth disease had not existed in this country, and that when it was communicated through the milk of diseased cattle to children the diagnosis could only be made in actual practice by the rapid improvement resulting from changing to an uncontaminated milk.

OBSERVATIONS ON PROLONGED WITHDRAWAL OF ALL FOOD IN THE
MANAGEMENT OF CERTAIN CASES OF INTESTINAL DISORDERS.

DR. THOMAS D. PARKE, of Birmingham, Ala., in presenting this paper, said that while the text-books did not recommend the withdrawal of food for more than forty-eight hours, he had been driven by the necessities of several difficult cases to resort to the withdrawal of all food for periods of four and five days, water only being allowed during this period. He had been agreeably surprised at the very moderate emaciation resulting from this seemingly heroic treatment, as well as by the satisfactory improvement in the condition of the children.

DR. C. G. KERLEY, of New York, said that many mothers, who found the ordinary nursing *régime* extremely irksome, would

get along nicely if the child were given one bottle-feeding a day, thus giving the mother more opportunity for recreation.

DR. R. B. GILBERT, of Louisville, spoke of the harm arising from a nursing mother making use of whiskey or tobacco, and also, of the deleterious effect on the quality of the milk produced by sexual excitement. Infants should not be suckled for three or four hours after sexual indulgence. Diarrhea in the newborn infant could often be controlled by merely nursing out the colostrum.

DR. GEORGE W. ACKER, of Washington, D. C., remarked that he had known the wearing of corsets to cause a deficiency in the breast milk.

INFANT FEEDING; ITS RELATION TO THE DIARRHEAL DISEASES
OF INFANCY.

DR. JAMES G. MASTIN, of Chicago, read this paper. He said that early and repeated examinations of the breast milk were necessary as a guide to the mode of life the mother should adopt. Properly directed effort would almost always lead to the successful maintenance of maternal nursing. When the quantity of breast milk was deficient, supplementary feedings of suitably modified cow's milk should be used. According to Holt, only about 3 per cent. of the fatal cases of infantile diarrhea occur in exclusively breast-fed infants.

DR. H. E. TULEY, of Louisville, said that much sickness would be prevented if it were generally recognized that a weaker formula of modified milk should be used in hot weather.

DR. A. C. COTTON, of Chicago, said that he had previously reported upwards of 50 cases in which there had been marked disturbance of lactation arising from excessive coitus.

A CASE OF PROBABLE GUMMATA OF THE LIVER IN A CHILD OF SIX.

DR. M. OSTHEIMER, of Philadelphia, reported this case, that of a girl of six, born of syphilitic and alcoholic parents. When first seen, there were fever, pain in the side and marked jaundice, and, although, there was marked enlargement of the liver, it was not associated with ascites. Under protoiodid of mercury the child rapidly improved, but subsequently she developed a point of tenderness midway between the margin of the ribs and the

umbilicus. All the symptoms disappeared under two months of mixed treatment.

INFLUENZA IN CHILDREN.

DR. WILLIAM CARVER WILLIAMS, of Chicago, presented this paper. He said that he had been informed by Dr. F. E. Wynkoop, of the Chicago Board of Health, that out of 2,460 examinations of cultures from cases of suspected diphtheria, 677 showed the influenza bacillus to be the only pathogenic organism present. In 173 of the 677 cases the diagnosis of diphtheria had been definitely made from the clinical features. Relapses in cases of influenza were quite common and grave sequelæ were frequent even in cases having a mild initial seizure. Children of any age were susceptible to the disease.

DR. H. M. McCLANAHAN, of Omaha, remarked that he had noticed that the fever of influenza was not so amenable as other fevers to treatment by hydrotherapy.

DR. JOHN C. COOK, of Chicago, said he had seen several cases of influenza, recently, in which there had been present an eruption strikingly like that of scarlatina.

Third Day.—Thursday, May 7th.

CAPILLARY BRONCHITIS.

DR. PHILIP F. BARBOUR, of Louisville, presented this paper. He said that the danger of capillary bronchitis was mechanical rather than febrile. The first stage was characterized by congestion, spasm and dryness; the chief danger of the second stage was from the increased secretion. The mucus could be best removed by the use of emetics, aided by lowering the head and securing the assistance of gravity. Strychnin, to tone up the heart and the muscular coat of the bronchioles, and atropin to check the excessive secretions, were the important drugs.

MANAGEMENT OF CATARRHAL PNEUMONIA IN INFANTS AND YOUNG CHILDREN.

DR. CHARLES G. KERLEY, of New York, was the author of this paper. He said that this disease most commonly followed a neglected bronchitis. It was most important to establish a rational sick room *régime*, and by supplying an abundance of fresh air and properly regulating the giving of medicines and food, secure

sufficient sleep and conserve the natural powers of resistance. Fresh air must be supplied to the room from out-doors, and this could be best accomplished by the use of the window board. Coddling, overclothing and the use of oilsilk or other jackets should be avoided, and the child should be kept in a roomy crib. The nursing hours should be the same as in health, but the time of nursing should be reduced one-third or one-half. The food for bottle-fed babies should be of half the usual strength. Ten drops of creosote and one quart of water should be boiled in a croup kettle, and the vapor should be conducted into a covered crib. These inhalations should last for thirty minutes and be repeated every three hours. For counter-irritation over the chest he preferred two or three mustard plasters in the twenty-four hours, made by mixing one part of mustard with two of flour and moistening with water. Cough syrups should be avoided because of their tendency to disturb the stomach, and in their stead expectorants, in tablet form, should be prescribed. Where the fever was high, and bathing was not well borne or was not properly given, he would prescribe for a child of one year $\frac{1}{5}$ of a grain of caffeine with $\frac{1}{2}$ grain each of Dover's powder and phenacetin. When evidence of heart failure was present, and not till then, heart stimulants should be prescribed. The best of these, in his estimation, was the tincture of strophanthus in doses of one drop every three hours for a child one year old. Strychnin should be pushed until the desired effect on the heart was obtained, or up to producing the physiological effect. Whiskey and brandy were sometimes useful in emergencies, but were ordinarily undesirable because of their proneness to cause gastric disturbance. When there was marked cyanosis, $\frac{1}{100}$ of a grain of nitroglycerin should be given every three hours. A sponge bath at 90°F. should be given daily for cleansing purposes. When the body temperature rose to 104°F., or over, it should be reduced by sponge baths; or, in severe hyperpyrexia, by the use of the wet pack. In certain severe cases of pneumonia oxygen was of service, if given for one or two minutes out of every ten minutes.

THE SAFRANIN REACTION IN THE URINE OF CHILDREN.

DR. W. S. CHRISTOPHER and DR. A. C. CROFTON, of Chicago, presented this paper, which was read by Dr. Crofton. The authors stated that safranin was a reliable and exceedingly delicate test for sugar in the urine, and was not affected by uric acid. The

normal "safranin index" was low during the first years of life, but gradually rose, reaching a maximum between the ages of three and four years, after which it slowly decreased for a number of years, though never again becoming so low as in the first year. During the first ten years the index in boys was higher than in girls, but at the age of eleven the safranin index became higher in girls. Apparently both the safranin and acid toxemias played an important rôle in infancy, and were responsible for many of the difficulties in the feeding of infants. The "saccharin diathesis" was found to be present in about one-third of the children whose urine was examined.

THE TREATMENT OF SCARLET FEVER; ITS COMPLICATIONS AND
SEQUELÆ.

DR. H. M. McCLANAHAN, of Omaha, was the author of this paper. He laid much emphasis on the importance of keeping all scarlet fever patients in bed and on a liquid diet for four weeks in order to avoid renal complications. High fever should be controlled by the bath or wet pack, and great restlessness by chloral, if necessary guarded by digitalis. Nasal irrigations with normal saline solution were of great importance, and inunctions of the body hastened desquamation and limited the spread of the infection. When cervical adenitis developed it should be treated by the local application of belladonna ointment, with or without the ice poultice. Stimulating diuretics should be avoided.

PROLONGED OR RETAINED INTUBATION TUBES, WITH A METHOD OF
TREATMENT LEADING TO THEIR EXTRACTION.

DR. B. R. SHURLY, of Detroit, read this paper. He said that, as a rule, all tubes should be extracted on the fourth day, and a preliminary large dose of antitoxin made this method almost uniformly successful. If reintubation were required another dose of antitoxin should be given. Direct medication to the larynx by means of rubber tubes coated with alum ointment or gelatin, deserved a more extensive trial.

PSEUDO-HYDRONEPHROSIS OR PARANEPHRITIC CYST IN A BOY OF
THREE AND A HALF YEARS. OPERATION. RECOVERY.

DR. SAMUEL W. KELLEY, of Cleveland, sent a paper in which this case was reported. The child had been run over, but at first there were no visible signs of injury. Then the abdomen began

to swell, and examination revealed a tumor filling the region of the pancreas and extending far back. Nephrotomy was done. The pelvis of the kidney was not very large, and contained no palpable calculus or growth. The case proved to be one of paranephritic cyst. Drainage was established by means of gauze and a tube. The child improved rapidly, and left the hospital with the wound healed. There were 1,500 cc. of a chocolate-colored fluid in the cyst, having a specific gravity of 1.013 and containing a large quantity of albumin.

The following officers were elected for 1904: Dr. C. G. Kerley, New York, chairman; Dr. C. F. Wahrer, Fort Madison, Ia., secretary.

A Study of Fifty-five Fatal Cases of Pertussis.—Hull (*Philadelphia Medical Journal*) gives a detailed study of 55 fatal cases. In these the complications were not the primary causes of death. In all of them, particularly in those of very young infants, the danger signal was either a developing stupor or an attack of prostration, from which the patients recovered only temporarily, to go into a state of increasing stupor and exhaustion until death. The average duration of the fatal cases was a trifle over three weeks. The indications in pertussis are plainly to support the patient, to establish an equilibrium in the nerve centres, and to prevent the further absorption of toxins by destroying the micro-organism producing them.—*American Medicine*.

The Milk Question and Mortality Amongst Children Here and in Germany.—Emile Berliner comparing the mortality amongst children in Washington and Hanover, finds that the figures for the latter are 60 per cent. higher than for the former. He considers the difference largely due to the quality of the milk in the two cities. In Hanover they have practically neither milk laws nor inspection of stables. The only punishable offense is the addition of water. In Washington they have pretty good, though not perfect, milk laws, and inspection is all that can be expected under the circumstances. The statistics of infant mortality in Washington and Hanover would seem to offer convincing proof that pure milk is necessary for the preservation of the health of young children.—*Medical Record*.

MINUTES OF THE FIFTEENTH ANNUAL MEETING OF THE AMERICAN PEDIATRIC SOCIETY.

HELD AT WASHINGTON, D. C., ON MAY 12, 13 AND 14, 1903, IN CON-
JUNCTION WITH THE AMERICAN CONGRESS OF
PHYSICIANS AND SURGEONS.

The following members were present: G. N. Acker, M.D., Washington; S. S. Adams, M.D., Washington; A. Baines, M.D., Toronto; A. D. Blackader, M.D., Montreal; W. D. Booker, M.D., Baltimore; W. L. Carr, M.D., New York; H. D. Chapin, M.D., New York; W. S. Christopher, M.D., Chicago; A. C. Cotton, M.D., Chicago; J. Dorning, M.D., New York; D. L. Edsall, M.D., Philadelphia; F. Forchheimer, M.D., Cincinnati; R. G. Freeman, M.D., New York; E. E. Graham, M.D., Philadelphia; J. P. C. Griffith, M.D., Philadelphia; S. McC. Hamill, M.D., Philadelphia; L. E. Holt, M.D., New York; A. Jacobi, M.D., New York; C. G. Jennings, M.D., Detroit; H. Koplik, M.D., New York; D. J. M. Miller, M.D., Philadelphia; J. L. Morse, M.D., Boston; W. P. Northrup, M.D., New York; W. Osler, M.D., Baltimore; C. P. Putnam, M.D., Boston; B. K. Rachford, M.D., Cincinnati; T. M. Rotch, M.D., Boston; E. W. Saunders, M.D., St. Louis; H. L. K. Shaw, M.D., Albany; I. M. Snow, M.D., Buffalo; L. Starr, M.D., Philadelphia; J. P. West, M.D., Bellaire; H. Williams, M.D., Boston; W. R. Wilson, M.D., Philadelphia.

FIRST SESSION, MAY 12TH.

The annual address of the president, entitled A Review of the Work of the American Pediatric Society, was read by Dr. Griffith, of Philadelphia.

Drs. C. F. Martin and F. M. Fry, of Montreal, presented a paper entitled Synopsis on Some of the Renal Lesions in Infancy, which was read by Dr. Samuel S. Adams.

Dr. A. C. Cotton, of Chicago, read a paper entitled Report of a Case of Chronic Nephritis in a Four-Year-Old Boy Having Only One Kidney, and showed photographs.

Drs. T. M. Rotch and H. H. Cushing, of Boston, presented a paper entitled A Case of Edebohls' Operation, which was read by Dr. Rotch.

Discussion by Drs. Edebohls, Rachford, Jennings, Cotton, Adams and Rotch.

Dr. S. S. Adams, of Washington, exhibited A Case of Club Feet operated on by Professor Lorenz, and showed casts of the case before operation.

Discussion by Drs. Rotch and Adams.

Dr. Adams showed, also, specimens from A Case of Abscess of the Lung.

Discussion by Drs. Rotch, Blackader, Cotton and Adams.

Dr. Simon Flexner, of Philadelphia (by invitation), opened the discussion on The Relation of the Bacillus of Shiga to the Summer Diarrheas.

Discussion was continued by Drs. Park, Koplik, Holt, Knox, Booker and Flexner.

Dr. Irving M. Snow, of Buffalo, presented a paper entitled Gastroenteric Infections of Newborn Children.

Drs. S. McC. Hamill and W. R. Nicholson presented a paper entitled The Infections of the Newborn, which was read by Dr. Hamill.

Discussion on both papers by Drs. Koplik, Rotch and Shaw.

Dr. R. G. Freeman, of New York, read a paper entitled The Etiology of Rachitis.

Discussion by Drs. Shaw, Adams, Miller and Cotton.

THIRD SESSION, MAY 14TH.

Vice-president Dr. Chapin occupied the chair.

Drs. D. L. Edsall and A. Fife, of Philadelphia, presented a paper entitled Some Chemical Analyses of Milk Mixtures, which was read by Dr. Edsall.

Dr. H. L. K. Shaw, of Albany, read papers entitled (a) The Determination of Fat and Total Solids in Milk, and (b) A Note on Abdominal Auscultation in Infancy.

Discussion on the first paper by Drs. Rotch, Adams, Cotton, Morse, Hamill, Chapin, Griffith and Edsall.

Dr. H. D. Chapin, of New York, presented a paper entitled Principles of Infant Feeding as Based on the Evolution of Mammals, with photographs.

Discussion by Drs. Rotch, Koplik and Chapin.

Dr. J. L. Morse, of Boston, read a paper entitled *A Report of Eight Cases of Pneumonia in Infants Treated with Antipneumococcic Serum.*

Discussion by Drs. Jennings and Saunders.

Dr. G. N. Acker, of Washington, read a report of *A Case of Myxedema*, and showed patient.

Discussion by Drs. Koplik, Rotch, Cotton, Blackader, Adams and Acker.

Drs. T. M. Rotch and H. Dunn, of Boston, presented the history and photographs of *A Case of Pulmonary Osteoarthropathy in a Child Three Years Old.* The paper was read by Dr. Rotch.

Discussion by Dr. West.

Dr. J. P. West, of Bellaire, showed (*a*) *A Case of Chondrodystrophy Fetalis in a Child Fourteen Months Old*, with photographs and specimens, and (*b*) *A Case of Congenital Hypertrophic Stenosis of the Pylorus*, with specimen.

Dr. Koplik, of New York, read a paper entitled *The Prophylaxis in the Prevention of the Spread of Vulvovaginitis in the Hospital Service.*

Discussion by Drs. Chapin, Cotton, Dodson (Guest) and Dorning.

Dr. W. P. Northrup, of New York, read papers entitled (*a*) *Nasal Intubation (soft rubber) for Relief of Dyspnea Due to Acute Nasopharyngeal Swelling in Infants*, and (*b*) *O'Dwyer Intubation Instruments. Added Tubes for Infants Under One Year.*

Discussion on the first paper by Drs. Morse, Koplik, Chapin and Northrup.

Discussion on the second paper by Drs. Dorning, Saunders and Northrup.

Dr. W. R. Wilson, of Philadelphia, read a paper entitled *Disturbances of Respiration in the Newborn.*

Discussion by Drs. Saunders, Hamill and Wilson.

The following papers were read by title:

Dr. A. Caillé, of New York, *A Proposition to Immunize Young School Children Once or Twice During the School Year with Diphtheria Antitoxin and Thereby Lessen the Mortality from Primary Diphtheria, Scarlatina and Measles Complicated with Diphtheria.*

Dr. L. E. Holt, of New York, Two Cases of Abscess of the Lung.

Dr. A. Hand, Jr., of Philadelphia, The Value of the Incubation Period in the Diagnosis of the Contagious Diseases of Childhood.

Dr. F. Huber, of New York, (a) Study of Two Cases of Intussusception (Boy of Six and Girl of Nine Years Old), and (b) Lumbar Puncture in Serous Meningitis.

Dr. D. L. Edsall, of Philadelphia, Concerning the Nature of Still's Type of Chronic Deforming Polyarthritis.

EXECUTIVE SESSION, MAY 13TH.

The report of the Council was presented by Dr. Blackader.

On nomination of Council the following officers were elected for the ensuing year :

President, - - - - A. CAILLÉ, M.D., New York.

First Vice-President, - A. BAINES, M.D., Toronto.

Second Vice-President, E. E. GRAHAM, M.D., Philadelphia.

Secretary, - - - - S. S. ADAMS, M.D., Washington.

Treasurer, - - - - J. P. WEST, M.D., Bellaire.

Recorder and Editor, - W. L. CARR, M.D., New York.

Members of the Council, { L. E. HOLT, M.D., New York.
F. S. CHURCHILL, M.D., Chicago.

Elected to Membership: Maynard Ladd, M.D., Boston; J. H. McCollom, M.D., Boston; L. E. LaFétra, M.D., New York; Isaac Abt, M.D., Chicago.

Elected to Honorary Membership: Dr. John Thomson, Edinburgh; Dr. Geo. F. Still, London; Dr. Henry Ashby, Manchester; Dr. Escherich, Gratz, Austria; Dr. O. Huebner, Berlin, Germany.

Assessment for the ensuing year—*Ten dollars*.

Place of meeting, Detroit, May, 1904.

Upon motion by Dr. Hamill the Society voted to allow the members to publish their papers in any journal, the Society to print its own Transactions.

Upon motion by Dr. Christopher the Society voted to defray the expenses of printing the index to the Transactions.

WALTER LESTER CARR, M.D.,

Recorder.

Current Literature.

PATHOLOGY.

Gerschel, M.A.: Subcutaneous Abscesses, Due to the Gonococcus, in a Child Two Years of Age. (*Medical Record*. February 7, 1903, p. 208.)

A child, two years old, was admitted to Mount Sinai Hospital for typhoid fever. A few days later he developed an anterior urethritis, which was proven to be due to the gonococcus. One week later an abscess developed on the left of the anus. Three days after this a second abscess developed to the right of the anus. Smears from the pus showed organisms resembling gonococci, and this organism was obtained in cultures.

Guida, T.: Cytodiagnosis In Meningitis. (*Archivo di Pathologia. Clin. Infant.* September and October, 1902.)

No leukocytes are found in the normal cerebrospinal fluid of man; but, in very rare instances, a small number of white cells may be met with in this liquid, as has been demonstrated by Widal. On the other hand, in meningitis and pseudomeningitis, this fluid contains mono- and polynuclear leukocytes and endothelial cells in such numbers as to assist in the diagnosis of these conditions. Widal, Sicard and Revaut conclude from a study of this question that in acute meningitis the cerebrospinal liquid contains morphological elements of fairly constant characters, and that the lymphocytes predominate almost exclusively in tuberculous meningitis. This they considered as a diagnostic sign of tuberculous inflammation of the meninges, thus adding a new mode of differentiating the cerebrospinal from the tuberculous forms of the disease to our resources of diagnosis. In cerebrospinal meningitis the characteristic cells found in the fluid are the polynuclear which predominate over all other forms. The present author calls attention to the fallacies of these methods of diagnosis in meningitis. Lymphocytosis in the cerebral fluid is not absolutely characteristic of tuberculous cases, as it may occur in chronic cases of cerebrospinal meningitis, while a pure lymphocytosis or even a predominance of lymphocytes may be absent in tuberculous cases.

In cerebrospinal meningitis the polynuclear leukocytosis is not pure, except in the first stages of the disease; and later the mononuclear cells are met with in the same proportions as the polynuclear, until finally the polynuclears diminish and disappear entirely leaving only the lymphocytes.

While errors are very apt to be made with this method of diagnosis, yet the cytological study of these exudates in meningitis may be of considerable prognostic importance. The gravity and subsequent course of a meningitis may, in other words, be deduced from a quantitative study of the various leukocytic forms. In pseudomeningitis, *i.e.*, in the presence of meningeal symptoms in cases of gastrointestinal and other diseases not affecting the meninges, cytodagnosis can have no serious value. In typhoid fever, however, according to Grenet, the absence of leukocytes in the cerebrospinal fluid would show that the nervous symptoms are functional and not due to a meningitis. On the other hand, a lymphocytosis would speak for a transient menigeal inflammation, yet, we should be careful how we trust the findings of cytodagnosis in typhoid fever, for the cases observed are still few, and it is important to give weight to the clinical manifestations of the case in each instance.

Clark, José A.: Contribution to the Study of Putrefaction in the Lungs of Stillborn Fetuses. (*Revista de la Asociacion Medico-Farmaceut. de la Isla de Cuba.* September, 1902, p. 17.)

The author studied the lungs of a number of stillborn fetuses in order to determine whether putrefaction goes on in lungs which have never been filled with air at any time. The absence of putrefaction in such lungs was thought by some authors to indicate the fact that the fetus had never breathed, and this sign was suggested as an addition to the classical floating-test. While the author recognizes that further researches are needed to clear up this matter fully, he concludes from his own experiments that the absence of putrefaction in the absence of respiration cannot be considered as proved. He found putrefaction in such lungs, but in varying degrees, depending upon a number of factors, such as the time during gestation at which the birth occurred, the diseases to which the mother had been subject, and the condition of the fetus at the time of birth. The principle that putrefaction in the lungs of a fetus may interfere with the value of the floating-

test should be allowed to remain in force, and the physician who is called upon to give a medico-legal opinion should never say, "the lungs float, therefore the fetus has breathed."

Hiss, P. H. and Russell, F. F.: A Study of a Bacillus Resembling the Bacillus of Shiga, from a Case of Fatal Diarrhea in a Child. (*Medical News*. February 14, 1903, p. 289.)

The writers present the following *résumé* of their work:—

"We have in this paper described an organism from a case of fatal diarrhea in an infant. This organism agglutinates in high dilutions with the serum from dysentery patients and animals immunized with Shiga bacilli. Formerly this bacillus 'Y' could not have been differentiated by valid culture tests from the bacillus of Shiga, and, the mannite test being unknown, might easily have been confounded with Shiga's organism unless its agglutinating reactions had been carefully studied in such a serum as that from typhoid immune animals, or from the normal beef, in neither of which the true Shiga bacillus, according to our tests, agglutinates in appreciable dilutions.

"The bacillus described by us is also closely related to *bacillus typhosus*, both in agglutinating reactions and in the usually observed cultural characters, but can be separated from it by the absence of motility and by its reactions in the maltose and dextrin media employed by us.

"This bacillus apparently differs from all hitherto described dysentery-like or 'pseudodysentery' bacilli, in its agglutination in high dilutions of dysentery serum, an agglutination in some instances more marked than that shown by the true Shiga bacillus. A description of this organism, apart from its connection, which may or may not be etiological, with the case of diarrhea, has seemed to us important, since tests of its ability to agglutinate—too often alone relied upon—might lead to its being confounded with Shiga's bacillus. A subsequent use of such an organism for serum diagnosis might thus give rise not only to confusion in determining the 'specific' character of a disease, but to untoward results in the application of serumtherapy.

"Its etiological significance we have not been able to determine, but its close physiological connection with the dysentery bacillus on one side and the bacillus of typhoid fever on the other make it not improbable that further research will show it to be associated etiologically with certain diarrheic or dysenteric attacks."

The mannite test consists in the use of a 1 per cent. mannite broth in fermentation tubes. A test of organisms in this medium has always served to differentiate cultures of Shiga's bacillus from typhoid. This point was first noted two years ago by Norris, working in the laboratory of the College of Physicians and Surgeons.

Thomson, R. S. and Brownlee, J.: Preliminary Note on the Parasites of Small-pox and Chicken-pox. (*British Medical Journal*. January 31, 1903, p. 241.)

In the blood of persons suffering from hemorrhagic small-pox are found small spherical bodies, highly refractive, and in general appearance simulating small globules of fat. They do not stain with osmic acid or any of the usual basic or acid stains. Similar bodies are found in the prodromal stages of both chicken-pox and small-pox and in cases of confluent small-pox after the third day. These bodies are quite unlike any of the ordinary histological or pathological constituents of the blood, and are larger than hemoconia (size 1-5 m.)

Spherical bodies somewhat resembling these, but differing from them in size and staining relations, have been found in the lymph spaces, blood-vessels, and epithelial layers of the skin. These latter bodies have also been found in smears from the vesicles and from sections of the skin showing papules. These bodies have also been observed in varicella.

Pottenger, F. M.: A Study of Tuberculous Infection. (*New York Medical Journal*. March 21, 1903.)

The conclusions of this article which contains full references to literature are, as follows:—

(1) Tuberculous infection is very common in early childhood.

(2) A large proportion of those patients who, although infected, do not show acute symptoms during childhood, develop active tuberculosis in later life.

(3) In seeking the cause of this frequent infection, aside from the habits of the child and the carelessness of the parent bringing it in frequent contact with the bacillus, all those things which lower vitality at this time must be considered; and, I would call special attention to the fact that there is a connection which seems more than coincidence in the time that tuberculous infection

takes place and the time that the child is most apt to suffer from catarrhal conditions of the stomach and bowels.

(4) More attention should be given to the care and feeding of children, so that their systems may be resistant to infection.

(5) All tuberculous children, whether they have lesions in the lymph nodes, bones, lungs, or any other part of the body, should be treated for their disease.

MEDICINE.

Guinon: Chronic Rheumatism. (*Le Progrès Méd.* February 28, 1903, p. 151.)

The writer presented a child of four years with chronic rheumatism. It was born at term after a difficult labor, and shortly after developed a purulent ophthalmia which was thought to be of gonococcic origin. The mother gave a history of having had rheumatic attacks during her several pregnancies. At six months the child manifested signs of rheumatism, beginning in the knees and traveling thence to the upper extremities. Little by little deformities occurred which rendered walking impossible without the aid of mechanical apparatus. The joints showed the characteristic lesions of chronic rheumatism. There was subluxation of both wrists, marked resistance in the extension of the elbows and muscular atrophy especially marked in the forearms and hands. The jaws projected prominently. There was no rachitis or other skeletal defect. Stress is laid upon the precocious appearance of rheumatism, in these cases, and its probable gonococcic origin. Lime-juice, phosphorus and static electricity have been tried without striking results. Swedish massage seems to be of some value.

Derschied, G.: Tuberculosis of the Muscles. (*La Rev. Internat. de la Tuberculose.* February, 1903, p. 87.)

A case of primary tubercular fungous myositis was observed in a child seven years old. The swelling occupied the calf of the leg and appeared to be subaponeurotic. The skin was freely movable over the tumor and any trace of inflammation was noticeably absent. Upon operation, a fungous material, neither caseous nor suppurative, was found lying along the muscles and aponeuroses.

euroses; in some places there was death of tissue. The operation wound remained open for a long time owing to the constant exudation of bloody material. This child enjoyed excellent health, and showed no other tubercular lesion. There was no history of tuberculosis. These cases of primary infection of the muscle are excessively rare. Two other cases in adults are cited in which the infection was secondary to pulmonary tuberculosis.

Salomon, M.: Two Rare Complications of Scarlet Fever. (*Gaz. des Mal. Inf.* January 15, 1903, p. 20.)

I. A child, seven years of age, with ordinary scarlet fever developed three weeks after the invasion, a re-rise of temperature. An infiltration of the scrotum was discovered, and the possibility of albuminuria was thought of, but none existed. Two days later the infiltration increased and in addition, there was painful swelling of the perineum, and induration to the groin, especially on the left side of the median *raphé*. An abscess formed, which was incised and drained, and the point of origin was found to be in the ischium. Thus it was an abscess of bony origin due to the streptococcus.

II. A child of three years with scarlatina and a very intense eruption, presented on the third day, an adeno-phlegmon on the left side of the neck. An incision was made. The right side of the neck was also swollen with a hemorrhagic effusion. The same night the child was taken with a convulsion and died. Autopsy showed an abscess surrounding the internal jugular with ulceration of the vessel; and a clot in the lateral sinus. Thus, the phlebitis of the lateral sinus was manifested by a single convulsion alone. Only 3 similar cases have been reported.

Anglade and Chocreaux: The Clinical and Anatomico-pathological Aspects of a Case of Tubercular Meningoencephalitis. (*Archiv. de Neurologie.* February, 1903, p. 197.)

When eight years of age the patient suffered a severe accident, after which there were no untoward effects until his nineteenth year. He was then taken with convulsions of epileptiform type, and for the next six years presented a typical case of ordinary epilepsy with delirium, which necessitated his confinement. He died, finally, of this illness, never having shown any phenomena of meningitis. At autopsy the brain was found to be studded

with miliary tubercles surrounding which there were areas of inflammatory softening. Tubercles were also found in the lungs. Microscopic examination revealed a marked increase in the neuroglia tissue invading the white substance underneath the areas of softening. This latter condition evidently accounts for the epileptic phenomena.

Cariot: Nursing and Stenosis of the Pylorus. (*Gaz. des Mal. Inf.* February 12, 1903, p. 49.)

The case refers to a child three and one-half months old, with a tubercular family history. He was breast-fed but since birth vomited after nearly every nursing, immediately or within an hour, the vomited milk being in its natural state or curdled. Neither the composition of the mother's milk, nor the question of overfeeding were found to be at fault. The baby was then fed on sterilized milk for three weeks, but continued to vomit and lose flesh and strength. Finally, the diagnosis was made of pyloric stenosis, due probably to the hypertrophy of the mucous and muscular layers of the pylorus. The most common symptoms of this disease are gastric dilatation and hypertrophy of the muscular layer of the stomach. In very thin children, peristaltic contractions can be seen through the relaxed abdominal wall. All other possible causes must be eliminated before the diagnosis of pyloric stenosis is made. It is a grave affection, and where palliative means fail, pyloroplasty, and gastroenterostomy have been suggested.

Hulle, Jean and Guillemot, L.: Purulent Pleurisy of Monomicrobial Origin. (*Annales de Méd. et Chir. Infant.* February, 1903, p. 79.)

The little patient, eleven years old, was brought under observation in an exceedingly grave condition. The face was drawn and pinched, there was intense dyspnea, profuse sweats and extreme feebleness. Examination of the chest showed retraction and flattening of the left side, bulging of the right, and the spine markedly deviated to the right. The slightest touch or movement caused excruciating pain. There was flatness over the entire left side, absence of vesicular murmur, but no egophony or pectoriloquy. Exploratory puncture proved the existence of a fetid purulent exudate; incision allowed the escape of 300 grams of bright green pus. The dressings continued to be saturated

for some days but the condition of the child rapidly improved, the vertebral deviation disappeared and within about a month, the child was practically cured. Three points are of especial interest in this case:

I. Its traumatic origin: The boy had been soundly thrashed by his comrades who gave him repeated hard blows on the chest. The onset of the pleurisy was almost immediate, the boy being unable to rise the next day.

II. The character of the pus: the odor resembled that of hydrogen sulphid and was neither fetid nor gangrenous; the color was bright green, the consistence oily with no slimy masses. The lung itself was probably involved at no time, as there had been no expectoration, no fetid breath, and no dead tissue was traceable in the pus.

III. From a bacteriological standpoint, unlike other empyemata, there was found, in almost pure culture, a single non-motile anaerobic germ which decolorized by Gram's method.

Watson, W. T.: A Fatal Case of Shönlein's Disease.
(*Maryland Medical Journal*. April, 1903, p. 141.)

The patient, a girl of ten years, developed swellings of the joints and a purpuric eruption on the abdomen, without fever. A week later symptoms of acute nephritis developed. Her condition gradually grew worse and she died at the end of a month. The autopsy showed acute hemorrhagic glomerulo-nephritis, anasarca, and bronchopneumonia. The kidneys were very large, their capsules free, the surface translucent, the cortex pale, the surface and section were both dotted with minute hemorrhages. Microscopically there were the lesions of glomerular nephritis.

Lambert, W. E.: Trachoma in the Public Schools of New York. (*Medical Record*. February 21, 1903, p. 293.)

Thirty-six public schools were inspected. Of 57,450 children examined, 6,690 were found to have some form of contagious eye disease, over 13 per cent. Of these 2,328 were severe trachoma, 3,243 were mild trachoma, and 1,099 acute purulent conjunctivitis. The percentage in the different schools varied from 3.2 to 22.2 per cent., the boys showing a larger percentage than the girls—boys 3.6 to 28 per cent., girls 1 to 18 per cent. From the statistics of the Board of Health it appears that from September 1, 1901, to

January 1, 1902, 1,003 children were excluded from the public schools on account of some form of contagious eye disease. From January 1, 1902 to June 1, 1902, 1,701 children were excluded for this cause. Since the school year was resumed in September, 1902, a systematic inspection of all the pupils was instituted by the Board of Health with the result that from that time to January 1, 1903, 20,316 children were excluded for this cause. Special arrangements have been required in the hospitals for the treatment of these cases. A corps of nurses has also been established to visit these patients at their homes, instruct the parents in the care of this affection, direct treatment, etc.

Abt, I. A.: Spontaneous Hemorrhages in Newborn Children. (*Journal of the American Medical Association.* January 31, 1903, p. 284.)

Twelve cases of spontaneous hemorrhage in newborn children are reported in detail. The hemorrhages occurred from the mucous membranes, from the navel, or into the skin and subcutaneous tissues. Four of the cases recovered, 8 died. The theories of the causation of melena are discussed. Landau's theory that the hemorrhages are caused by ulcers of the stomach produced by emboli has been discarded. Congenital syphilis is the explanation of a number of cases. Two at least of Abt's cases were due to this cause. Mracek who examined 19 cases of hemorrhagic syphilis found changes in the blood vessels in 14 per cent. The changes included endarteritis of the small and medium-sized blood vessels in the submucous tissue of the alimentary tract. The most striking changes were in the capillaries. In recent times the tendency has been to ascribe these cases to infection and various organisms have been isolated from the blood and tissues of fatal cases. Micrococci, diplococci, streptococci, the bacillus pyocyaneus, the colon bacillus and other organisms have been found. It is improbable that there is a specific organism. The hemorrhages are rather a symptom of any one of a number of infections. In the treatment internal remedies are of no avail. The local treatment by styptics, including the extract of the suprarenal gland, is without permanent effect. A pad of sterile gauze may be soaked in a 10 per cent. solution of gelatin in normal salt solution and applied to bleeding areas. Injections of a 2 per cent. solution of gelatin in normal salt solution, repeatedly

sterilized, may be given. From 25 to 50 cc. of such solution may be given to a newborn child and repeated daily. These measures are warmly recommended and there can be no objection to their use. In syphilitic cases vigorous specific treatment should be given.

Jordan, A. C.: Aneurism of the Ascending Arch of the Aorta in a Small Boy. (*The Lancet*. February 21, 1903, p. 515.)

A boy, aged six and a half years, who had been the subject of otitis media since babyhood, began to suffer with headache, vomiting, and fever on September 6th. These symptoms grew worse until the 10th, then they began to subside, and on the 20th they left him. On the 14th the left knee began to swell. Effusion into the joint increased up to the 18th and then began to diminish, the knee being normal at the time of his death. On the 26th, when he was apparently convalescent, he suddenly died.

At the autopsy the pericardium was found distended with blood which had come from a ruptured aneurism of the ascending aorta. The aneurism was a small, sacculated one, located on the anterior wall of the aorta. The only explanation of its occurrence offered was that it had been caused by a localized septic aortitis, the suppurative process in the ear being the original focus. The joint affection must have been of the same nature.

Smith, Eustace: On Reflex Convulsions in Growing Boys and Girls. (*The Lancet*. January 24, 1903, p. 221.)

Reflex convulsions in infancy, due to teething and other irritations are well known; that similar convulsions occur in the later years of childhood is not so generally recognized. Convulsions in these later years are too often considered and treated as epileptic, when careful consideration would show other cause for them. These reflex convulsions are most often seen in the children of neurotic families and especially in individuals with poor circulation. The convulsions occur singly or in groups or batches; they are usually preceded by definite signs of ill-health. Gastric or gastrointestinal catarrh, and the digestive turmoil dependent upon it are most often the explanation of these attacks, but other forms of local irritation may produce like effects. Among these are mentioned such as hard scybalous masses in an already inflamed bowel, the eye-strain of hypermetropia or astigmatism, etc. Children with adenoids are especially likely to be affected

by such irritants. A constantly acting irritant need not be severe to produce convulsions in a susceptible child.

McNaughton, G.: Epidemic Parotitis with Metastasis to the Female Genitalia; with Report of a Case. (*Brooklyn Medical Journal.* March, 1903, p. 115.)

An extensive *résumé* of literature bearing upon the subject is given. The case reported is that of a girl, aged eighteen years, who suffered from an attack of mumps. As the parotitis began to subside, she developed severe pain in both ovarian regions, which increased in severity for two days, when a bloody flow appeared. The pain required opiates and the temperature at the height of the affection reached 104° . These symptoms were interpreted as an illustration of the specific poison of parotitis affecting the female genitalia.

Reid, J.: Note on Conditions Modifying Exanthematous Eruptions. (*The Lancet.* March 21, 1903, p. 797.)

In medical practice there is often a temptation to diagnose a recrudescence of a previous attack, or even a fresh zymotic disease, on the appearance of a fresh eruption, while probably sight is lost of certain factors in connection with such cases, namely, (1) the fact that the skin has passed through an inflammatory stage and is on that account a *pars minoris resistentiæ*; (2) that the zymotic disease may have attacked a constitution weakened by rheumatism or gout, where rashes often appear; and (3) that some local mischief may favor, or rather tend to induce eruptions. Several cases are reported to bear out these propositions.

Davies, S.: Mild Unsuspected Nasal Diphtheria as a Link in the Chain of Infection. (*British Medical Journal.* February 14, 1903, p. 367.)

Three instances are related in which mild cases of sore throat accompanied with nasal discharges had not been isolated with the result of infecting several other members of the family in each instance. Diphtheria bacilli were found in the nasal discharges weeks after the occurrence of the sore throat. These cases impress the need of being on the lookout for mild cases of diphtheria.

McCarthy, D. J. and Ravenel, M. P.: The Clinical Manifestations of Hydrophobia. (*Journal of the American Medical Association.* March 21, 1903, p. 753.)

A boy, of five years, was bitten by a stray dog. Thirty-three days later he showed the first symptom, crying during sleep. The next day he did not appear well but there were no active symptoms. The third day he developed difficulty in swallowing, fluid being regurgitated through the nose. He became very nervous and frightened. Marked spasm of the muscles of the throat and neck developed on every attempt to swallow. The pulse became very rapid, the patient restless and finally delirious. The expression, which from the first had been anxious, assumed a terrified aspect. He soon became pulseless and died within three days of the first symptom. Characteristic changes were found in the medula, pons, crura, and intervertebral ganglia.

Nikolsky, I. N.: Leukemia in a Child. (*Detskaja Medicina.* 1903, No. 1.)

A boy of six and one-half years, who had one month previously suffered from malaria, developed glandular enlargements in the cervical, axillary and inguinal regions. The spleen was also considerably enlarged and painful on pressure. Red cells 1,500,000, white 80,000; proportion 1:16. Hemoglobin, 42 per cent. Differential count: lymphocytes 92.5 per cent., transitional forms 4.1 per cent., polynuclears 1.7 per cent., eosinophiles 0.7 per cent., neutrophiles and basophiles 0.4 per cent. Nosebleed and bloody vomiting appeared, and the child rapidly succumbed.

Cattaneo, Cesare and Marimo, Francesco: Researches on Some Forms of Sensibility and on the Stereognostic Sense in Childhood. (*Pediatrics.* December, 1902, p. 593.)

The authors studied the interesting problem of the state of the tactile, thermal, and pain sensations in infancy, as compared to adult life, as well as the development in infants of the so-called sense of location and position. As yet but few studies of similar character have appeared, and the present article offers the results of continued observations in a number of children. They found that the tactile sense was highly developed in children from two to eight years of age, with a very precise localization and limitation of the tactile circles. The sensation of pressure and

that of heat were fully developed. The so-called muscular sense or the sense of attitude and the power of stereognostic perception were exact and precise. The sense of pain, however, as tested with the electric current, was deficient as compared to its development in the adult, and the authors conclude that this sense is a differentiation which occurs later in life through a probable summation of the general sensibility.

SURGERY.

Broca and Delanglade: On a Case of Congenital "Genu Recurvatum" with Autopsy. (*La Presse Med.* February 21, 1903, p. 185.)

A baby born in the eighth month of pregnancy presented a double "genu recurvatum" with spina bifida. Anatomical examination proved the existence of a forward dislocation of the tibia on the femur. One leg was dissected and the other studied from frozen sections; and it appeared that the subluxation was maintained by the tension of the soft parts. The indication therefore would be to reduce, by manipulation, the tension of the soft parts. The author operated upon a baby two months old with the above indication in view, and found reduction simple, but the dislocation recurred. The leg was then immobilized at a right angle, and put in plaster for one month. Complete cure resulted.

Springer, Carl: Echinococcus of the Pleura. (*Centralbl. für Kinderheilk.* Vol. viii., No. 1.)

The patient, a boy eleven years old, had been suffering from an obscure affection for five years. A subphrenic abscess had been suspected until the echinococcus broke through into the right pleural cavity, when a puncture was made and fluid containing hooklets, scolices and particles of membrane drawn off. The presence of necrotic liver-cells in the fluid pointed to the primary seat of the echinococcus in that organ.

A resection of two ribs was performed, and two weeks later the echinococcus sac became sufficiently detached to allow its removal in toto. The boy recovered completely.

Woodyatt, J. F. Circumcision for Congenital Phimosis.
(*British Medical Journal.* March 7, 1903, p. 545.)

Based upon the observation that the condition preventing the retraction of the prepuce is due to tightness of the mucous membrane, and not to contraction of the skin, which is not usually redundant, a plastic operation is employed which gives much better results than circumcision. The prepuce is retracted as far as it will go, when the constricting mucous membrane is cut with sharp pointed scissors, retracting the prepuce as the constriction is relieved, cutting down as far as the corona; adhesions are separated and smegma removed. This longitudinal incision is converted into a transverse by a suture approximating the ends of the incision. One or two sutures are inserted on either side to bring the mucous membrane into close approximation.

The advantages claimed for the operation are:—

- (1) That no tissue is removed.
- (2) Small size of wound.
- (3) The facility with which it is performed.
- (4) The result is much better than that of circumcision, the glans often being left covered by skin, which is seldom the case after circumcision.

Franzi, Francesco: Riga's Disease or Sublingual Growths in Infants. (*Arch. di Patol. Clin. Infant.* September and October, 1902.)

A great deal of discussion has been going on in Italy within recent years concerning the nature, origin and treatment of the little growths which sometimes develop in nursing infants under the tongue, in the region of the frenum. The disease has been considered by some as local, due to irritation by some, and general or systemic by others, coincident with cachexia and marasmus. The present author reports a case in which the growth disappeared spontaneously when the quality of the breast-milk which the infant was taking had been improved. The author thinks that these growths (which have been found to be fibromata) arise through constant irritation in cases in which the quality or quantity of milk is so deficient as to necessitate violent sucking on the part of the infant or unusually prolonged and frequent nursing. He therefore opposes the practice of removing these growths surgically, and favors the regulation of lactation or feeding as

the only measure necessary to cause the disappearance of these growths. In this he agrees with his master, Guida, who recently published a detailed study of this subject. (Same journal, Nos. 2, 3, 1902.)

Kelley, S. W.: Two Cases of Dermoids in Children. (*Journal of the American Medical Association*. February 14, 1903, p. 435.)

Dermoids of the testicle are very rare. In 1885 Verneuil published an analysis of 9 cases; to these Kocher has added 4. D'Arcy Power in 1886 said that in 200 years 10 cases had been recorded. Few other cases are on record. The latest theory of the origin of dermoids of the ovary is that of Wilms, who claims to have shown that they are formed directly from an ovule in the ovary, by a kind of parthenogenesis. Wilms explains dermoids of the testicle in the same manner, by a pathologic growth of the sperm cell. Two cases are reported. The first case was that of a boy, two and one-half years old, who had a dermoid tumor of the testicle. The second case was a girl, of seven years, from whom a dermoid cyst of the left ovary, the size of an orange, was removed. This child had had attacks of what was called inflammation of the bowels, probably produced by the pressure of the tumor.

Morse, J. L.: Retropharyngeal Abscess in Infancy. (*Journal of the American Medical Association*. January 31, 1903, p. 281.)

Retropharyngeal abscess may be either primary or secondary. Only the primary cases are considered in this paper. The greatest number of cases occur between the ages of four months and one year. The abscess is due to suppuration in the retropharyngeal lymph nodes, which are usually infected from some one of the cavities which they drain, the cranium, pharynx, nose and middle ear. These nodes are said to atrophy after the third year. The symptoms of abscess in these nodes include unwillingness to take food or difficulty in swallowing, modification of the voice, and difficulty in respiration. The head in acute cases is usually extended and turned to one side. Mistakes in diagnosis are most often due to failure to consider the question of retropharyngeal abscess. The examination should be made by both inspection and palpation. Death has resulted from the introduction of a mouth-

gag in this condition, and therefore only a tongue-depressor should be used. The prognosis depends upon treatment. Untreated cases usually end in death. The abscess should be opened by internal incision. Second or third incisions may be required, but this method is preferable to the incision through the neck. The incision is best made with the infant upright. If the child is tipped forward the instant the incision is made there is no danger of the pus entering the air passages. The mortality in cases treated by such incision is about 5 per cent.

Arnoit, W. J. J. : Case of Liver Abscess in a Child Aged Two and One-half Years. (*British Medical Journal.* January 24, 1903, p. 189.)

A child, aged two and one-half years, had an attack of dysentery. Under treatment this improved, but was followed by fever, enlargement of the liver, fullness of the abdomen, and a slight catch in respiration, without signs in the lungs. A canula inserted in the tenth intercostal space in the anterior axillary line evacuated twelve ounces of pus. The child improved and seemed about to recover, when tuberculous meningitis developed and terminated fatally.

Seager, F. R. : Hydatid Cyst of the Spleen. (*The Lancet.* March 7, 1903, p. 655.)

A boy, aged eleven years, was admitted to Salop Infirmary for a lump in his left side. Apart from the tumor the boy was well. The tumor was the size of a small orange and projected from beneath the costal margin with its centre just internal to the nipple line. To palpation it was cystic, but without any sign to indicate its nature. On operating the tumor was found to be a hydatid cyst of the spleen. The cyst was single, with no daughter cysts. The boy made a good recovery.

Trimble, I. R. : Report of a Case of Malignant Edema. (*American Medicine.* March 21, 1903, p. 462.)

A boy, twelve years old, sustained a compound fracture of the femur. The next day he developed high fever, rapid pulse, and delirium and the thigh became swollen, dark, and emphysematous. The wound discharged a dark brown, serous fluid. The thigh was amputated, but the disease continued to spread, and death resulted six days after the injury. Cultures from the necrotic tissues showed the *bacillus edematis maligni*, described by Pasteur and Koch.

HYGIENE AND THERAPEUTICS.

Tuttle, G. M.: Hematemesis in the Newborn Treated by Adrenalin Chlorid. (*St. Louis Courier of Medicine.* March, 1903, p. 188.)

A four days' old baby suddenly without cause began to vomit blood. The blood was vomited three times in as many hours. One tarry stool was also passed. Five drop doses of the 1-1000 solution of adrenalin chlorid were ordered given every four hours. Once after beginning the adrenalin the baby vomited some clotted blood and milk, but after that there was no further bleeding. The case is reported for what it is worth.

Parry, T. W.: A Case of Hemophilia Illustrating the Value of Calcium Chlorid as a Local Styptic. (*The Lancet.* February 21, 1903, p. 516.)

A hemophilic boy, of seven years, began to bleed from a cleft between two molar teeth. After alum, tannic acid, turpentine, and perchloride of iron had been used without effect, partial success was obtained from applications of adrenalin chlorid, 1 to 1,000. The bleeding, however, recurred and resort was had to pledgets soaked in a solution of calcium chlorid, thirty grains to the ounce. Repeated applications of this kind resulted in a final cessation of the hemorrhage.

Bandler, S. W.: Some Observations on Vulvovaginitis in Children. (*Medical Record.* March 14, 1903, page 401.)

A purulent vulvovaginitis in children is due, in the vast majority of cases, to the gonococcus; it may likewise be due to a small coccus, also intracellular, but which is certainly not the gonococcus. For the vulvitis Bandler paints the areas thoroughly with a 10 per cent. silver solution. The child should also be seated for fifteen minutes, twice a day, in a very warm sitz-bath, for the purpose of removing the superficial desquamating layers. Between treatments a 2 per cent. protargol ointment, freshly made, is the ideal external application. For the vaginitis irrigations with boric acid solution and the installation of 2 per cent. protargol are employed. The Ferguson speculum is very useful both in diagnosis and treatment. The writer has devised a special speculum for use in children.

Among the sequelæ of the process are mentioned atresia of the vagina or hymen, gonorrheal cystitis, and gonorrheal peritonitis.

Shaw, H. L. K. : Examination of Milk by the General Practitioner. (*Medical Record.* April 4, 1903, p. 532.)

The specific gravity of the milk is obtained by the New York Board of Health or the Quevenne lactometer. The fat is estimated by the Babcock method. The sugar percentage in both human and cow's milk is so constant that it need not be estimated, but may be taken as 6.5 in the one case, 4.5 in the other. The total solids may then be calculated by Richmond's formula. Total solids = .25 Sp. Gr. + 1.2 Fat + .14. Richmond has devised a rule by which the desired calculation can be made at a glance. The amount of proteid can be obtained by subtracting the sum of the fat, sugar, and salts from the total solids.

Makuen, G. H. : The Influence of Catarrhal Diseases of the Nose and Throat in Producing Speech Defects in Children. (*International Medical Magazine.* February, 1903, p. 88.)

There are three distinct mechanisms concerned in speech, namely, the respiratory, the vocal, and the oral articulating mechanisms. One of the most common causes of defective speech in children is faulty breathing. The causes of faulty breathing are usually found in the pharynx, nose, or mouth. Anything that blocks the pharyngeal passages brings about what has been called a muscle imbalance, which is somewhat akin to the condition of the muscles of the eye producing squint and the acquirement of speech under these conditions is fraught with difficulties. Operations for the relief of stenosis of the respiratory tract and their accompanying catarrhal conditions cannot take place too early in the child's life. Systemic treatment is even more important in the treatment of these cases than in the treatment of adults, and it should never be overlooked.

Harrington, C. : The Composition and Alcoholic Content of Certain Proprietary Foods for the Sick. (*Boston Medical and Surgical Journal.* March 12, 1903, p. 283.)

As the result of analyses, Liquid Peptonoids are found to contain 23.03 per cent. by volume of alcohol, 14.91 per cent. of total solids, and 0.17 per cent. mineral matter. Panopepton yields

17.99 per cent. solid matter, and 18.95 per cent. of alcohol. Hema-peptone has 19.54 per cent. total solids, 0.37 per cent. mineral matter, and 10.60 per cent. alcohol. Nutritive Liquid Peptone contains 15.2 per cent. of total solids, 0.69 per cent. mineral matter, and 14.81 per cent. alcohol. Hemaboloids shows 6.36 per cent. of total solids, mineral matter 0.62 per cent., and alcohol 15.81 per cent. Tonic Beef is found to contain 18.16 per cent. solids, 1.04 per cent. mineral matter, and 15.58 per cent. alcohol.

Mulford's Predigested Beef yields 10.39 per cent. solids, including 0.20 per cent. mineral matter, and 19.72 per cent. alcohol.

Townsend, C. W.: Cream for the Home Modification of Milk. (*Boston Medical and Surgical Journal.* April 16, 1903, p. 414.)

The writer's conclusions are, as follows:—

(1) Centrifugal cream is probably less desirable for infant feeding than gravity cream. As obtained from dealers it is often far from accurate in percentage.

(2) Siphonage for obtaining gravity cream is an accurate method, but one requiring considerable skill to perform accurately and safely.

(3) Dipping off the top milk is an accurate and safe method, if reasonable care is used.

(4) The method for obtaining gravity cream by pouring off the top is very accurate and extremely simple. There is no instrument to be bought and kept clean. By this method it is possible to obtain cream of any desired percentage up to 26 per cent.

(5) To ensure perfect accuracy, frequent examinations with the Babcock machine are required; but for practical purposes this is not necessary, provided the mixed milk from a well-regulated dairy is obtained.

Sharples, P. P. and Darling, E. A.: Variation in the Composition of Human Milk. (*Boston Medical and Surgical Journal.* April 16, 1903, p. 416.)

The purpose of the writers' investigations was to provide data from such a number of samples as to sink the effect of any one sample in the average of all. The samples were collected under nearly uniform conditions. After the child had suckled for a few minutes one ounce of milk was withdrawn by a breast

pump and forwarded to the laboratory. The conclusions drawn follow :—

(1) The average composition of human milk, as shown by 117 analyses, is:—

Fat,	2.91	Ash,	0.13
Sugar,	7.01	Total Solids,	11.39
Proteids,	1.34	Solids not Fat,	8.48

(2) There are wide variations from the average in milk from the same individual at different times.

(3) There are marked variations in the average composition of milk from different individuals.

(4) The average composition of human milk does not vary to any marked extent at different periods of lactation.

(5) During the first lactation the milk, on the average, is weaker in fat and proteids, but stronger in sugar than in subsequent lactations. These differences may or may not be due to age.

Daniloff, N. P.: The Drawbacks of Sterilizing Milk.
(*Russhi Vrach.* Vol. ii., No. 7.)

The use of sterilized milk for the purpose of artificial infant-feeding is meeting with condemnation on all sides. Once looked upon as an epoch-making innovation, it is now abandoned by the majority of leading authorities.

The author has drawn his conclusions from a study of 175 analyses of sterilized milk. It was found that milk, when subjected to high temperatures, gradually loses its normal odor and taste, becoming insipid. The fat-globules undergo certain changes of a quantitative character; the sugar and the albuminous elements are likewise altered. These changes are the results of high temperature. The milk thus altered in composition becomes indigestible or else loses its vital properties.

Prolonged employment of sterilized milk as an infant food lowers or completely deranges metabolism; an extra strain is thrown on the digestive organs, paving the way for a host of diseases; the systemic nutrition is inadequate, and the result is frequently constitutional disease.

Finally, the much-vaunted germicidal value of sterilization is a complete illusion. This result can only be obtained by temperatures which render the milk useless for feeding. Cleanliness in handling and preserving the milk are far more valuable.

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Original Communications.

A CASE OF DECAPSULATION OF BOTH KIDNEYS (EDEBOHLS' OPERATION) IN A BOY NINE AND ONE-HALF YEARS OLD.*

BY THOMAS MORGAN ROTCH, M.D., AND H. W. CUSHING, M.D.,
Boston.

The boy entered the Children's Hospital, Boston, September 11, 1902. Family history negative. He was reported to have had measles three times, and to have been subject to tonsillitis. He was also reported to have had diphtheria and typhoid fever in the year previous, for which he was treated in the hospital. He was said never to have had rheumatism or scarlet fever. During his attack of typhoid in the previous year, the urine was reported to have been as follows: Color high; sp. gr. 1.022; reaction acid; sugar absent; albumin slightest possible trace.

Three or four days before his entrance to the hospital it was noticed that his abdomen began to be enlarged, and this was followed by swelling of the legs and then of the face. At this time there was noticed no change in the urine as to color and amount. He was said to have had dyspnea on exertion for some time previous to his entrance to the hospital. Had had no headache and no vomiting, but some dizziness at times. He was well developed and nourished; expression bright; skin clear, but of a pasty color; throat and tongue normal, but pale; teeth decayed; no enlargement of the lymph nodes. He had edema of the face

* Read at the meeting of the American Pediatric Society, Washington, D. C., May 12, 13 and 14, 1903.

and abdominal walls, and marked edema of the legs. The pupils were equal and reacted normally. Lungs were normal. Examination of the heart showed no increased cardiac area and clear sounds, excepting second sounds which were strongly accentuated. The abdomen was somewhat distended, but not tense and no ascites was detected. The blood showed: hemoglobin 50 per cent.; leukocytes 6,700.

The urine was smoky; reaction acid; sp. gr. 1.010; albumin $\frac{1}{8}$ to $\frac{1}{4}$ per cent.; bile and sugar absent; the sediment showed many hyaline and many granular casts with blood and renal cells adherent; a few fatty and epithelial casts; many round cells, often fatty; leukocytes free and in clumps; a few decolorized red corpuscles and a few squamous epithelial cells. Considerable free fat.

During the next three months the boy varied in his symptoms, sometimes growing better and sometimes worse. During this period he had at times considerable edema and a large amount of ascites for which he was tapped three times. The amount of urine also varied considerably from about 300 cc. to about 1,800 cc. The amount of albumin varied from $\frac{1}{8}$ to $\frac{1}{4}$ per cent. During this time repeated examinations of the urine showed no marked difference from that found at entrance. The summary of the condition of the urine up to the time the child was transferred for operation is as follows: Color was at times pale and at times smoky; sp. gr. was about 1.010; the amount passed in twenty-four hours varied from 400 cc. to 800 cc.; at one time shortly after entrance a larger amount was passed, reaching 2,500 cc.; the amount of albumin was fairly constant from $\frac{1}{8}$ to $\frac{1}{3}$; the amount of urea excreted in twenty-four hours varied from five to ten grams; the sediment showed at all times very numerous casts both hyaline and granular, with renal cells and fat adherent; fatty and epithelial casts were usually present in smaller numbers, and at one time very highly refracting casts were noticed; fatty degenerated epithelium and free fat were constantly present in considerable quantities; renal cells were constantly numerous; the amount of blood in the sediment varied, at times there were many red corpuscles, free and adherent to the casts, and at others almost none.

The boy was transferred to the surgical department on December 28th, three months after entrance, and was placed under the care of Dr. H. W. Cushing. The following are the subsequent notes of the case:

His condition when coming under Dr. Cushing's care was that of a patient suffering from advanced parenchymatous nephritis. There was edema of the face, also of the back and of the external genitals, and marked edema of the lower extremities. The examination of the chest showed the heart's action somewhat irregular, rate 108, the cardiac dullness somewhat increased to the right. The lungs showed dullness and flatness in the lower lobes dorsally, especially at the bases, and medium and fine moist râles. The skin was very white. There was slight cyanosis of the extremities. The abdomen was distended, the circumference at the navel was 31 inches. The percussion was flat except in the umbilical region, and contained 4,220 cc. of fluid. There was occasional nausea and vomiting. The urine was diminishing in amount. From 1,000 cc. in twenty-four hours it had decreased to 480 cc. on December 29th. The specific gravity was rather low, 1.010; the amount of albumin varied from $\frac{1}{8}$ to $\frac{1}{3}$ per cent.; the urea varied from five to nine grams in the twenty-four hours; the sediment contained hyaline, fine granular, granular and fatty casts and fatty renal cells in abundance. The patient's general condition was growing steadily worse in spite of several months' careful treatment.

On January 1, 1903, Dr. Cushing decapsulated both kidneys. The duration of the operation was fifty minutes for the left side and thirty-five minutes for the right. Previous to this procedure 4,220 cc. of a slightly opalescent fluid, odorless, with neutral reaction, a specific gravity of 1.011 and a slight trace of albumin was removed from the peritoneal cavity.

The anesthetic was ether, preceded by nitrous-oxid. The technique of the operation was the usual one. The operation was more difficult than the average case on account of the edema of the dorsal tissues and the inability to deliver the kidney outside the incision of the skin. The decapsulation had to be done in the depth of the wound. The kidneys were enlarged; the fibrous capsules were not adherent; the denuded surface was matted with yellowish white areas alternating with injected ones; the cortex was quite friable. No especial cicatricial depressions of the surface were noted. The patient bore the operation well. The amount of ether inhaled was seven ounces. The pulse rate was 120 during the manipulation of the kidney, generally 100 to 110 at other times. The temperature fell to 94°F., three hours after the opera-

tion, and rose to 99°F., four hours later. For the next seven days it averaged 101°F.

The first act of micturition occurred five hours after the operation, the amount being 30 cc. During the first twenty-four hours the amount was 62 cc. It was slightly pale; very acid; urea 0.39 grams; albumin $\frac{1}{7}$ per cent.; the sediment contained numerous hyaline, finely granular and fatty casts, fatty renal cells and compound granule cells, leukocytes and epithelial casts; a few fibrinous casts and cholesterin crystals. There were more blood globules than in the previous specimens. The ratio of urine to the total amount of fluid ingested was 1 to 6.

There was distinct thirst after the operation, but the patient said he felt much more comfortable than before. The headache had disappeared, also the nausea. The edema also began to diminish at once.

The patient was temporarily relieved and lived until January 19th, on which day he died suddenly, with symptoms of acute pulmonary edema and cardiac exhaustion, eighteen days after his operation. The improvement noted immediately after the operation continued to January 8th, or 9th, and the condition seemed to indicate a favorable result up to that time. The patient was cheerful and quite comfortable. The edema had disappeared except in the legs and feet where it was much less.

The urine increased in amount from 85 cc. in twenty-four hours to 450, 1110, 1170 cc. The ratio of the urine to the total amount of liquids ingested had increased to 1:2; that is, from $\frac{1}{6}$ immediately after the operation to $\frac{1}{2}$.

On the seventh day the urea was 1.18 per cent., or 11.21 grams in the twenty-four hours. Albumin $\frac{1}{7}$ per cent. Sediment was still considerable, but less than at first. Casts were fewer, chiefly hyaline, granular, fatty and epithelial; an occasional fibrinous cast, blood globule and cholesterin crystal; a few renal cells and leukocytes were also seen.

From that time the clinical picture changed. The temperature rose to 105°F., and from that time until the end ranged between 104° and 100° F. The pulse averaged from 130 to 140 beats per minute. The operation wounds which had apparently united by primary union were partially strained open superficially on the thirteenth day by the returning edema. The respiration averaged 35. Nausea and vomiting recurred on the thirteenth day.

The urine diminished in amount from 600 cc. to 230, 290, 300,

350, and to 338 cc. on the fifth day preceding the death. The amount of albumin ranged from $\frac{1}{7}$ to $\frac{1}{3}$ per cent. The urea varied from 4.6 grams in the twenty-four hours to 3.6 grams. The sediment increased toward the end and its fatty elements increased, and there were numerous free oil globules.

The remarkable results produced by decapsulation of a seriously diseased kidney have attracted marked attention. Surgically, attention is not so much directed today to the possibility of the operation, or its technique, for both have been conclusively demonstrated, neither is it a matter of doubt that patients suffering with advanced nephritic disease have apparently recovered after this operation, but it has not yet been accurately determined what varieties of renal disease are benefited by this treatment, or what are the limitations of the operation. The surgeon has not yet the knowledge which enables him to decide in what cases decapsulation can be performed with success and in what ones it is contraindicated, also in what cases it will relieve even if the patient is not cured, and in what cases the result will be a fatal one.

The case just reported, although unsuccessful, may be of service in contributing data to assist in acquiring this desired knowledge and for this purpose is reported. The patient was in an advanced stage of the disease presenting distinct uremic symptoms. The function of the kidney was seriously impaired. There could be only one termination, and that in a comparatively short time. It was then an operation done as a last resort. The fatal result was unexpected after it was found that the patient did not succumb to the operation. It was hoped, as two weeks had elapsed before the condition became alarming, and as for a greater part of that time the patient had done well, that eventually he would recover. It was expected that the operation would be the severest strain. That he endured it so well was an encouraging feature.

It has been estimated that a period of from three to four weeks is required to fairly establish the new circulatory renal conditions which are essential for the permanent recovery. Hence in a patient whose renal tissue is so disorganized that his excretory power would be insufficient for that period, this operation would be contraindicated. It has been stated that the diminution of the daily amount of urea to, or less, than $\frac{1}{3}$ the normal amount indicates such deficient excretory power. In this case the rule

holds good, although in the beginning the course of the disease seemed to indicate that it would be an exception.

The effect of the anesthetic was interesting. It was, although continued for nearly one and a half hours, in no way, as far as could be seen, deleterious. The character of the urine improved immediately after the operation.

The effect of the operation on the edema was also striking. It was markedly diminished and continued so until three or four days before death, when it again began to reappear. This has been noted in other cases.

DISCUSSION.

DR. EDEBOHLS.—I have recently published in the *Medical Record* (March 28, 1903), practically all that I have to say at present upon this subject. The matter, as Dr. Rotch has informed us, will come up in larger form at some of the meetings of the other sections and I may then find occasion to say something more. I agree with Dr. Rotch that the surgical treatment of chronic Bright's disease is not at all a settled matter, that it is still on trial, and that the final word will not be spoken for several years to come, until we know the ultimate results in the advanced cases which are at present being operated upon.

DR. RACHFORD.—How old was this case when operated upon; that is, how long had it had nephritis; and I should like to know whether the child died from the operation or from the nephritis?

DR. ROTCH.—The child had been ill for four months. It was apparently a perfectly healthy child, and I ought to have spoken of the result. So far as I can see what Dr. Edebohls has done, surgically, is to show that the operation can be done successfully.

I think my case was a case that would have died at any rate, from the character of the disease itself, but such cases must be investigated in the future.

The child collapsed at the end of two weeks and that comes within the period where the circulation is not restored in both kidneys. We cannot say that it was the effect of the anesthetic or the effect of the operation. It seemed to be the condition of the kidney itself.

DR. RACHFORD.—It appears to me that the future of this operation must be decided largely by operations upon adults, rather than upon children, since chronic nephritis is a much more common disease among adults than it is among children.

With children suffering from acute nephritis the tendency is to complete recovery, even though the disease may have been prolonged weeks or months. Chronic nephritis is, therefore, com-

paratively speaking, rather an uncommon disease in the child, while acute nephritis is very much more frequent at this period of life.

What Dr. Rotch has said concerning scarlatinal nephritis applies to all forms of nephritis whatever may be their cause. In all of these the tendency is, if the patient lives a certain length of time, to ultimate recovery, although a small percentage may run into chronic nephritis.

In these cases therefore it is difficult to say whether the operation brought about the recovery, or whether they would have recovered without the operation. In cases of chronic nephritis, however, which you recognize as an incurable disease we are safe in crediting the operation with the recovery, because we know they could not have recovered without the operation.

DR. JENNINGS.—I might note one observation which bears upon what Dr. Rotch has said in regard to the possible functional disturbances as a cause for those symptoms. The case was one of chronic renal insufficiency and chronic uremia with severe paroxysmal pain and great tenderness over the left kidney. The case came to operation and it was thought there might be renal calculus. The urinary findings were those of a chronic interstitial nephritis. The kidney did not present, macroscopically, any marked pathological change, at least it did not present the appearances of an advanced chronic interstitial nephritis. The capsule was split and partially peeled back and the pelvis explored for stone, etc. The woman made a rather remarkable recovery. There was restoration of renal function, entire relief of pain and an improvement in her general condition so that she appears to be now, in two or three months, a pretty well woman. Here is a case presenting, macroscopically, no apparent pathological change in the kidney, but with the urinary findings, of a chronic interstitial nephritis.

DR. ROTCH.—I should like to say a few words in reply to Dr. Rachford. In former times I agreed with Dr. Rachford that chronic nephritis in children was very rare, indeed so rare that when I saw my first case I looked upon it as something extremely unusual. Of later years, however, I believe that it has been proved not to be so and we have chronic nephritis in children just as we do in adults. We have been having quite a number of chronic nephritic cases in the last few years under our care in Boston at the Children's Hospital, and we have seen them die of chronic nephritis just as adults do, and I believe that it should not be conceded that it is so rare in children to have chronic nephritis.

To be sure it is comparatively rare just as chronic diseases in children are in comparison to chronic diseases in adults; but that does not alter the question that it occurs, and if it occurs we should bring forth all the information we can to determine when these cases should be operated upon. A certain class of these cases may be saved by Dr. Edebohls' operation. Of course,

it is the wonderful recuperative power of the child which makes chronic disease, or death from chronic disease, so much more rare in childhood than in adult life. It seems to me that there is going to be a very broad field for Dr. Edebohls' operation among children. We must decide whether these cases in children should be operated upon. Since chronic nephritis occurs in children they may die from it. It will be a great advance in treatment when we have learned to pick out the class of cases for operation. Cases following scarlet fever though likely to get well, when they become chronic, still at times die and they are perhaps the ones whose lives might be saved by Dr. Edebohls' operation.

DR. RACHFORD.—I did not mean to say that there was no field for this operation in infancy and childhood. I did, however, say that it would be more difficult to prove the value of Edebohls' operation, from operations in infancy and childhood than in the adult, because it was more difficult in the child to decide when these cases were chronic and incurable.

If they are operated on, for example, in six months of the time when the albuminuria began, there is at the time of the operation a chance of their getting well under medical treatment, for this reason it would be impossible to state positively that a surgical operation had cured these cases. I do not mean to say, however, that cases of this kind are not to have the benefit of this operation, but only insist that the true value of this operation must be largely decided by operations upon chronic and incurable cases, such as are commonly found in the adult.

DR. COTTON.—I have nothing to say more than the information that it has been my good or bad fortune to have 4 cases in the past year of chronic nephritis in children under four years of age. There were three deaths; two autopsies. One child still under treatment is two and a half years old; and, although of course every year my practice does not bring that number by any means, still I have begun to think that it is not so rare a disease in early life as we used to consider it.

DR. ADAMS.—I want to understand the pathological condition of the urine of the infant. I should like to know whether any one can recall an advanced case, such cases as we know go on from bad to worse, in which the child recovered, where there were found the evidences of structural changes of interstitial nephritis, because that would have a very great bearing upon the point of contention, as one of the speakers admits that these cases invariably go on to destruction. Has he ever seen a case where the evidence of interstitial nephritis was so marked in which the child recovered?

DR. ROTCH.—I do not believe that this must be decided by results in the adult. Even if the operation turns out to be a success in adults, I believe we still ought to decide whether it ought to be done in children by a separate study of children. In one we have the developed and in the other the undeveloped organ. Now I

think it is a tremendous field we have before us. It is always more difficult to make a diagnosis or a prognosis in children than in adults, no matter what disease they may have. We should not go to the adult to decide whether certain treatment is good for the child any more than we should go from the child to the adult.

For the Acute Bronchitis of Childhood.—Professor E. Ausset (*Echo médical du nord*, December 7th) says that in cases of profound diffuse bronchitis of infancy, if the child is not too young, or the general state too feeble, the induction of vomiting is indicated. In this form the bronchial congestion, which especially keeps up the secretions and the cough, is very intense. Vaso-constrictors are, therefore, indicated, and the following form is recommended:

℞ Ergotin 0.75 grams (11 grains);
 Syrup of ipecac 30.00 grams (1 ounce);
 Looch blanc, q. s. to make 100 cub. cents. (3 ounces).

M. To be taken in teaspoonful doses in the twenty-four hours, when awake.

Looch blanc is a preparation equivalent to the emulsum amygdalæ of the U. S. Pharmacopæia. The French formula is given by Dorvault (*L'officine*, 1872) as follows:

℞ Cleaned sweet almonds 30.00 grams (1 ounce);
 Bitter almonds 2.00 grams (30 grains);
 White sugar 30.00 grams (1 ounce);
 Powdered gum tragacanth ... 0.50 grams (7½ grains);
 Orange flower water 10.00 grams (150 minims);
 Water 120.00 grams (4 ounces).

M.

Or modified thus:

℞ Sweet almonds 12.00 grams (180 grains);
 Sugar 20.00 grams (300 grains);
 Gum tragacanth 0.40 grams (6 grains);
 Orange flower water 10.00 grams (150 minims);
 Water 80.00 grams (2½ ounces).

M.

—*New York Medical Journal.*

VARICELLA GANGRENOSA. ITS APPARENT FREQUENT ASSOCIATION WITH TUBERCULOSIS.*

BY WILLIAM A. EDWARDS, M.D.,

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Semtschenko studied 872 cases of varicella during twelve epidemics, covering a period of fifteen years, at the Hospice des Enfants-Assistés in Kasan, and has recently made his report, which does not record the occurrence of varicella gangrenosa in a single instance.

The Index Catalogue of the Library of the Surgeon-General's office, Vol. xv., under the reference word "varicella" contains 172 titles and in but twelve instances is varicella gangrenosa referred to. Woodward, in the *Pacific Medical Journal*, March, 1889, page 196, makes the somewhat remarkable statement that "until within the past year the leading dermatologists of New York were practically unacquainted with this somewhat rare form of disease, first described by Hutchinson."

It is the comparative infrequency of the condition which prompts me to note the following case which came under my observation about six years ago; a child aged twelve contracted what appeared to be the ordinary type of varicella with its usual eruption and concomitants. Within a few hours after the first appearance of the vesicles on the face and about the hair of the head, the temperature rose rapidly to 104°F., and remained between 102° and 104° for about thirty-six hours, it then gradually receded to between 100° and 102° for the succeeding forty-eight hours, and for the remainder of the acute stage of the exanthem it showed but slight elevation above the normal. The eruption in the meantime became generally diffused over the body in patches and colonies of from three to eight vesicles, and in some rapidly passed into the papular stage, which lasted but a few hours; the vesicles and papules instead of drying up now assumed a gangrenous type, they sometimes became large black

* Read before San Diego County Medical Society.

scabs, with a diameter of from 1 to 3 cm.; others remained light in color, about the hue of exuded blood serum, and had successive layers deposited so that they stood up from the skin for about 1 cm. They were all surrounded by an inflammatory areola. The picture was not unlike the appearance of a diffused rupial syphilide. But few of the vesicles escaped the gangrenous invasion. All of the spots contained pus, which, in some instances, exuded around the border of the scab; several of the scabs revealed an ulcerated surface. The pus contained both the streptococcus pyogenes and the staphylococcus pyogenes albus in large numbers. The child had a somewhat tardy convalescence but eventually entirely recovered, with but comparatively slight pitting of the face.

Gangrenous dermatitis, of which varicella gangrenosa is a type, of the same class as ecthyma gangrenosa and pemphigus gangrenosa, is an infrequent disease, usually confined to early infancy, and generally occurs in the poorly nourished children of the overcrowded districts of the larger cities, but even then it is rare. In my experience during my service in the Philadelphia University and St. Joseph's Hospitals and in two asylums for infants and children in Philadelphia I had the privilege of seeing but two instances of the condition which is now under consideration and these were both cases of varicella gangrenosa and terminated fatally.

Gangrenous varicella may be looked upon as an unusual complication of a very simple disease, it seems to bear no definite relation to the severity of the eruptive fever, as in the case under consideration the type of the varicella was not specially severe and the younger sister of the patient presented a concomitant attack of the usual severity. It seems to be due to an overwhelming invasion of pathogenic organisms, the streptococcus and staphylococcus, and in some instances it seems, as Rotch thinks, to have some connection with the gangrenous processes which certain individuals show a tendency to develop.

As a rule, this form of varicella attacks the ill-nourished and poorer members of the population; our case occurred among the well-to-do class, but the child could be considered scrofulous under the older nomenclature and in the sense that Ashby uses the word scrofulosis in my edition of the Cyclopaedia Diseases of Children, Vol. v., page 317. Many of the recorded cases are in the scrofulous. Ashby and Wright report such a case with photo-

graph. The child, aged two years, had an attack of varicella gangrenosa, and two months later died of tuberculosis. These observers find varicella gangrenosa not at all uncommon in the out-patient's room, and lay special stress upon its association with tuberculosis. They endorse the statement of Payne that in all fatal cases of this affection tubercle has been found postmortem. Attention has also been called to the frequency with which acute tuberculosis follows varicella. This is more particularly noted among the writers of England and the Continent.

The one fact that stands out very clearly in the study of varicella gangrenosa is its almost constant clinical association with tuberculosis, but as far as I know no studies have as yet been made to demonstrate the presence or absence of the tubercle bacillus in the skin lesions. A review of the cases in the literature makes this association very striking, particularly so if we remember the relationship of scrofulosis to tuberculosis and that the former term has been abandoned by most writers (Pye-Smith Lumleian Lectures on Etiology, Royal College of Physicians, 1892) and that the presence or absence of the bacillus determines the nature of the so-called scrofulous cases; but we must also remember that much that is called scrofulous is not tubercular in the sense that the specific bacillus can be demonstrated, but we all concede that while the mucous membrane catarrhs, the enlarged tonsils, adenoids, the skin eruptions and the like are not necessarily tubercular processes, they are often, as Ashby says, precursors of tuberculosis and occur in children who are especially liable to become tubercular. If then we include the cases of "strumous or scrofulous" children that have been the subject of varicella gangrenosa, the evidence is overwhelming that the association is close, indeed, it may be causative. To accentuate this interesting point we cite the report of Andrew (Trans. Clin. Soc., Lond., 1890, Vol. xxiii., page 82) of a strumous boy aged nine with varicella gangrenosa of such a severe type as to produce septicemia.

Radcliffe Crocker stated to the London Pathological Society (*Lancet*, May 30, 1885) that the tubercular association of gangrenous ulceration was suggested by Dr. Barlow some time ago. In one of Crocker's fatal cases there was a strong tubercular history. The observer makes the interesting point that the gangrenous condition did not always appear to come from the varicella

eruption itself but in the skin which had not been the seat of the varicella vesicles. This is in my experience unusual and with the exception of Lockwood (ARCHIVES OF PEDIATRICS, 1897, Vol. xiv., pages 680-683) other observers do not seem to have seen such involvement of the skin. This observer says that the hemorrhagic and gangrenous processes were not limited to the dermatitis zone. They sometimes occurred in tissues which were free of the chickenpox vesicles and oftentimes there was no obvious relation between the hemorrhage and the gangrene. The case was fatal on eighth day, no autopsy. Autopsy has not always been held; many of the notes are like those of Bowlby (*Lancet*, London, May 30, 1885, page 987), who showed a drawing before the London Pathological Society of a case of varicella gangrenosa from the body of a male child aged ten months who had had varicella fourteen days before. Six gangrenous patches. Infant recovered and left hospital. Died few days later in convulsions but no necropsy could be obtained.

Payne exhibited a series of specimens to the London Pathological Society, from the body of a child (Trans. Path. Soc., Lond., 1884-85, Vol. xxxvi., page 471) aged one and one-half years, who died with varicella gangrenosa and whose lungs were filled with yellowish miliary tubercles singly and in groups. Some small hemorrhagic infarctions. One miliary tubercle on surface of heart. Spleen thickly studded with miliary tubercles. In the light of the autopsy the acute tuberculosis must be considered as the cause of death. The character of the tubercles and the absence of any old tubercular masses showed that the disease was quite recent. It could not have existed long before the attack of varicella, and possibly might have come on since the commencement of that disease. This very interesting point is made, that there was no trace of tubercular structure around ulcer.

Payne notes the association with tuberculosis and says, "The coincidence of the disease with tuberculosis is remarkable, it is noticeable that in the only other published case known to me which ended fatally, and in which a postmortem was made, the result was the same." Dr. Barlow has acquainted him with some facts which strongly confirm his impression that the coincidence of tuberculosis with gangrenous varicella is not entirely a fortuitous one.

Warrington Howard (*Brit. Med. Jour.*, London, 1883, Vol. i., page 904) gives us notes of a fatal case in a child aged one year

in which the gangrene was of a very severe type. The autopsy showed that the gangrenous patches on the abdomen had penetrated the entire thickness of the skin, exposing the muscle. In each lung were several small, recent, secondary abscesses surrounded by a zone of hyperemic tissue. Lymph in left pleura and two ounces of purulent fluid in cavity. Brain and other viscera normal. The gangrene in this case set in suddenly and progressed with rapidity. A point of interest is the early occurrence of pyemia, which was the immediate cause of death. There was no bacteriologic or microscopic study made and while the case is considered nontubercular, still this point is not entirely clear.

Jamieson (Trans. Med. Chir. Soc., Edin., 1886-7-8, Vol. vi., page 19-21) exhibited a patient aged one year nine months before the Society, showing the scars and cicatrices from a severe gangrenous varicella. While the child was not actually tubercular it was one of eleven children (six full term and five premature births) whose father had sarcoma of ankle joint, one sister with tubercular disease of mesenteric lymph nodes and one with tubercular cervical adenitis. The subject of the exanthem pined from one month of age and was distinctly rachitic.

Barlow in discussing Hutchinson's paper (Gangrenous Eruptions with Chickenpox and Vaccination) before the Royal Medico Chirurgical Society (*Lancet*, London, 1881, page 751) stated that none of the cases of which he had notes were in healthy children, there often was lung disease and in six postmortem examinations, tubercle was present; of course, tubercle was very commonly associated with many affections, so that he did not wish to lay stress upon the association in this case. During the same discussion Stokes said that he was of the opinion that the cases occurred in healthy children; many London children are tubercular and delicate; but he believed that the tubercle was simply an adjunct and not a predisposing cause of the gangrene, though the fatal cases might be tubercular.

John Abercrombie (Trans. Path. Soc., Lond., 1879-80, Vol. xxxi., page 333) saw a typical example of varicella gangrenosa in a male child aged fourteen months; at the postmortem tubercular ulceration of the ileocecal valve and caseous mesenteric lymph nodes were found. All the children in this house had varicella about the same time, but this one alone became gangrenous.

Griffith's case (*Univ. Med. Mag.*, August, 1896) was fatal but no autopsy is recorded.

That varicella gangrenosa is in some instances due to infection is again most conclusively proven by the experience of Kojukoff (*Arch. f. Kinderh.*, Bd. xxvii., Hefte, 5 v 6) who saw an infant aged fourteen months who had many ulcers at the site of the vesicles, most numerous on the trunk, but the largest were on the labia majora. They all secreted a bloody pus. Cultures from the ulcers gave a growth of diphtheria bacillus, either alone or with cocci. Cultures from the pharynx were negative. The bacillus was found to be very virulent to guinea pigs. The child died in a few days. The author inclines to the belief that the diphtheria bacillus circulating in the blood and lymph found in the varicella blebs a spot of lowered resistance and so produced its effect.

The occurrence of nephritis with varicella is not altogether unusual, as pointed out by Jacobi some years ago, and more recently by Cerf (*Arch. de Med. des. Enf.*, February, 1901, quoting from *L'Augov. Med.*, September, 1900*) who has tabulated 40 cases of nephritis complicating varicella; but Silver's case in a boy aged two years seems to be the only note of acute nephritis (abundant albumin and numerous casts) complicating varicella gangrenosa. The case was fatal but an autopsy was refused.

Bolognini's cases (*La Pediatria*, March, 1897), 12 in number, while a little incomplete in that he only says that the vesicles pustulated and formed blebs, are extremely interesting in the present study in that he made microscopic studies and cultures from the pustules and blebs and found them to be due to staphylococcus and streptococcus infection; one case resulting fatally from an abscess of the kidney gave a pure culture of streptococci.

All of the vesicles may not become gangrenous. In the fatal case of a girl aged four, recorded by Büchler (*American Journal of Medical Sciences*, Philadelphia, 1889, Vol. xcvi., page 265), the majority of the efflorescences took the usual course of the varicella vesicle and then dessicated, but about eighteen or twenty of these on the chest, back and buttocks became filled with a greenish yellow pus and were surrounded by a broad phlegmonous areola; by the fourth day these were deep gangrenous ulcers covered by a blackish green detritus. No bacteriological study was made.

Hoesslin (*Münch. Med. Woch.*, April 29, 1902) had a some-

* Krause, *Münchener Med. Woch.*, 48 Jahrg., No. 10, March 15, 1901, reports a fatal case of parenchymatous nephritis complicating varicella. The kidneys were free from bacteria, both on staining and on culture.

what similar experience. Twenty of the vesicles underwent a peculiar necrosis. The case is further unusual in that the general symptoms were not influenced by the gangrene. He thinks that while the cause of the necrosis is doubtful, it was probably due to a mixed bacterial infection.

On the other hand, all of the vesicles may take on this gangrenous process, as noted by Stamford (*Med. Press and Circ.*, Lond., 1890, N. S., Vol. xlix., page 37), in a boy aged seventeen months. In this case on the sixth day of the disease most of the vesicles had become hard black scabs, surrounded by erysipelatous-looking areas, varying in size from a sixpence to a florin. On the tenth day all of the vesicles, except those on the head and face, were deep circular ulcers which had a clean, punched-out appearance and extended down to, and exposed, the fasciæ. In the center of several were ashen gray sloughs. It required three and a half weeks for the ulcers to commence to heal. No history of syphilis or tuberculosis in the family.

In conclusion we will briefly review the current opinion of the etiology and pathology of the disease.

Holt considers that for the production of the disease two factors are necessary; first, a weakened constitution, as in those suffering from marasmus in institutions; and, second, the entrance of pyogenic germs, usually the streptococcus pyogenes. He adheres to the older classification of gangrenous dermatitis under which he places varicella gangrenosa, ecthyma gangrenosa and pemphigus gangrenosa.

Plant (*American Text Book Diseases of Children*, page 160, second edition) thinks that tuberculosis, rickets and inherited syphilis seem to exercise a predisposing influence. He rather agrees with the dermatologists in classifying varicella gangrenosa as a variety of dermatitis gangrenosa infantum, similar to vaccinia, pemphigus and other (discrete) pustular lesions which may take on gangrenous changes. Of the pathology of varicella gangrenosa, Plant thinks that but little that is definite is known. It is reasonable to state, however, that it is a secondary infection in the milder cases, probably with the ordinary pyogenic organisms, but the more malignant cases seem to have a different pathology.

Eustace Smith has this to say: "Death is often hastened by some inflammatory lung complication and many of the children are the subjects of acute tuberculosis."

Goodhart inclines somewhat to the belief that tubercle un-

derlies the occurrence of varicella gangrenosa, but we may have to fall back to the suggestion of special idiosyncrasy or, as he expresses it, we may say that what rupia is to syphilis, cancrum oris to measles, vaccinia gangrenosa to vaccinia, so gangrene is to some cases of varicella, a risk that it shares with other exanthems.

Ashby and Wright are strongly in favor of the causal relation of tuberculosis to the graver forms of varicella gangrenosa. They have also seen several cases of acute tuberculosis follow varicella. Hatfield (*Medical Standard*, Vol. xxii., No. 9; *ARCHIVES OF PEDIATRICS*, March, 1901, page 236) says that the so-called gangrenous form is due, partly, to secondary infection with pyogenic cocci. The author has seen epidemics of gangrenous chickenpox in overcrowded orphan asylums. In certain cases the secondary infection may cause ordinary sepsis.

In conclusion, then, it would seem that varicella gangrenosa is often seen in the tuberculous, but even here it is probably due to an infection with the usual pathogenic organisms. The gangrenous eruption may occur in the tuberculous on account of their well-known lack of resistance to infections of all kinds, and, also, because they may have streptococci and staphylococci present in the respiratory tract before the varicella infection occurs. The fact remains, let the explanation be what you will, that varicella gangrenosa is often seen in association with tuberculosis in some of its forms.

The Influenza Bacillus.—Wynekoop (*Jour. Amer. Med. Association*, February 28, 1903) calls attention to some atypical manifestations of this bacillus. During the past five years hundreds of cultures made from inflamed throat and nasal mucous membranes, eyes, etc., have been examined, and many local disorders found dependent on the influenza bacillus and not on pyogenic bacteria. Laryngitis, pharyngitis, and tonsillitis and apparent diphtheria are among these. The conjunctivitis caused is characterized by suddenness of onset, rapidity of development, and shortness of duration. The severer cases suggest blenorrrhea or conjunctival diphtheria. The symptoms disappear quickly under antiseptic treatment.—*American Medicine*.

THE DETERMINATION OF FAT AND TOTAL SOLIDS IN MILK.*

BY HENRY L. K. SHAW, M.D.,

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The amount of butter fat in milk can be determined by various methods. The principle of most of these is similar and consists of dissolving the solids, not fat, of the milk by means of various chemicals and either measuring the fat as such in a narrow, graduated tube or dissolving it with ether, gasolin, etc., and weighing it on evaporation of the solvent. The separated fat is brought into the narrow, graduated tube by centrifugal force in the Babcock, Gerber, and Lefferman-Beam tests.

In order to ascertain the relative accuracy of several of the simpler clinical tests for determining the amount of fat in milk, I made a number of comparative analyses. The following methods were employed.

THE BABCOCK TEST.—This is distinctively an American test and is widely employed by dairymen in this country. The glass-ware consists of test bottles, a milk pipette and an acid measure. The neck of the test bottle on which the scale is etched is three inches long and is graduated from 1 to 5 or 1 to 10 per cent., and further subdivided into tenths of 1 per cent. The tester is a centrifugal machine run by hand, steam, or motor power. The machines on the market are large and cumbersome and not at all practical for the physician's use. At my suggestion a small hand centrifuge was made by D. H. Burrell & Co., Little Falls, N. Y., which is thoroughly practical, requires the regulation size test bottles and takes up very little room in the physician's laboratory.

The test is made as follows: Seventeen and six-tenths cc. of milk are drawn into the milk pipette and run into one of the test bottles. Seventeen and a half cc. of clean sulphuric acid with a specific gravity of 1.082 are then slowly poured in the test bottle. The milk and acid are thoroughly mixed by a rotary motion,

* Read at the meeting of the American Pediatric Society, Washington, D. C., May 12, 13 and 14, 1903.

placed in the centrifuge and whirled for four minutes. Boiling water is then added by means of the pipette until the lower part of the column of fat comes within the scale on the neck of the test bottle. A second whirling for one minute completes the separation of the fat. The fat thus obtained should form a clear, yellowish liquid quite distinct from the acid solution. The fat is measured from the lower line of demarcation between the fat and the water to the top of the meniscus of the upper level. This test requires but one chemical and is extremely simple and easy of execution.

THE GERBER METHOD is employed a great deal in Europe and is somewhat similar to the Babcock test. The machine is large and bulky and is revolved by rapidly pulling on a strap. This is not an easy procedure and is attended with a great deal of noise. The glassware consists of test bottles with long necks graduated into fifths of 1 cc. These are stopped with rubber corks which are very apt to slip out during the whirling. There are also pipettes for the milk, acid and amyl alcohol. Ten cc. of milk are run into the test bottle and then 10 cc. of sulphuric acid are added. These are thoroughly mixed and 1 cc. of amyl alcohol introduced. The cork is inserted and the bottles reversed and placed in a cup in the centrifuge. The machine is run for four minutes and the amount of fat read from the scale.

THE LEFFERMAN-BEAM TEST, or rather an adaptation, is used with the hand centrifuges commonly supplied to physicians. The scale on the neck of the test bottle is only about an inch in length and is divided so as to register 5 per cent. of butter fat in fifths of 1 per cent. The scale is so small that an accurate reading is almost impossible. The neck of the bottle being so small, the milk and reagents are introduced with some difficulty. Five cc. of milk are introduced into the tube and to this is added 1 cc. of a mixture of fusel oil, wood alcohol and hydrochloric acid. After this is thoroughly mixed sufficient sulphuric acid is added to bring the fluid in the neck of the bottle. The tube is then placed in the centrifuge and whirled for a few minutes.

THE MARCLAND LACTOBUTYROMETER is better known abroad than in this country. It consists of a glass tube closed at one end, with a narrowed segment near the open end. The narrow portion is graduated into thirty divisions. The tube is marked so that the lower portion shall contain 5 cc. of milk, the middle 5 cc. of ether, and the upper 5 cc. of alcohol. The milk is first added

to the point indicated in the tube and a few drops of a 10 per cent. solution of sodium hydrate introduced. The ether is then added to the next division. This is thoroughly but gently mixed and when the mixture is homogeneous the alcohol is added and again carefully mixed. The ether should have a specific gravity of .725 at 60°F., and the alcohol should be about 93 per cent. The tube is immersed in a water bath with a temperature of 100°F. for fifteen or twenty minutes and the amount of fat read off from the scale. To obtain the percentage of fat the following formula is employed in which X equals the number of divisions on the scale.

Percentage of fat = $X \times .233 + 1.266$. This is a simple and easy method, requiring but 5 cc. of milk. Not infrequently a coagulation takes place when the alcohol is added which spoils the test and sometimes the fat fails to rise so that this test cannot always be relied upon. This is not so liable to occur with mother's milk.

THE HOLT CREAM GAUGE consists of a cylinder holding 10 cc. and graduated into tenths of 1 cc. Ten cc. of milk are poured in the bottle and allowed to stand for twenty-four hours. The amount of cream can be read off in tenths of 1 cc. The percentage of fat is reckoned on the ratio of five to three. This gives only approximate results and is not accurate enough for practical purposes. Fresh milk in which the cream has not risen is said to be necessary in order to obtain satisfactory results. It is only fair to state that the samples used in these tests were from two to five days old.

All the samples of milk examined were received from the laboratory of the New York State Department of Agriculture. They were examined by the chemist, Dr. Wheeler, and a comparison of results was not made until after the completion of the tests so as to avoid all possibility of personal bias in the calculations. The percentage of fat was determined by the state chemist according to the Adams' extraction method. This method consists in spreading the milk over absorbent paper, drying and extracting the fat with ether in a Soxhlet apparatus. The ether is removed by distillation and the fat in the flask is weighed. This procedure requires special chemical training and expensive apparatus and is not suitable for the physician's use. The results, however, are scientifically correct and were the standard in comparing the accuracy of the various tests.

TABLE A.—COMPARATIVE FAT READINGS.

Number.	Extraction Method.	Babcock Method.	Marchand Lactobutyrometer.	Gerber Method.	Lefferman-Beam Test.	Cream Gauge.
1	3.27	3.2	2.89	2.	3.	6 (3.6)
2	3.12	3.	3.12	1.9	x	6 (3.6)
3	4.63	4.3	neg.	2.7	3.	10 (6.)
4	3.62	3.6	neg.	2.6	3.2	7 (4.2)
5	4.6	4.1	4.16	2.5	3.6	8 (4.8)
6	2.9	2.9	2.56	1.	2.	6 (3.6)
7	3.15	3.1	3.17	x	x	7 (4.2)
8	3.54	3.2	3.27	x	x	7 (4.2)
9	3.73	3.7	3.07	x	x	8 (4.8)
10	3.07	3.2	2.8	x	x	8 (4.8)
11	4.45	4.5	neg.	x	x	10 (6.)
12	3.41	3.4	neg.	x	x	x
13	4.74	4.7	4.52	x	x	x
14	4.14	4.	3.82	x	x	x
15	3.89	3.8	3.9	x	x	8 (4.8)
16	4.31	4.2	4.52	x	x	10 (6.)
17	3.48	3.4	3.124	x	x	x
18	2.7	2.6	1.95	x	x	6 (3.6)
19	3.75	4.	2.56	x	x	9 (5.4)
20	2.73	2.9	neg.	x	x	x
21	3.28	3.5	neg.	x	x	x
22	3.25	3.	2.86	x	x	x
23	3.23	3.	2.86	x	x	x
24	3.21	3.	2.86	x	x	x
25	3.87	3.8	3.37	x	x	x
26	3.94	3.8	3.6	x	x	x
27	3.68	3.6	3.59	x	x	x
28	3.53	3.4	neg.	x	x	x
29	2.54	2.4	neg.	x	x	x
30	3.93	4.	neg.	x	x	x

On comparing the results of these tests (see Table A) it will be seen that the Babcock test was most near the standard and rarely varied more than two-tenths of 1 per cent. The average error of the thirty tests was only seven-hundredths of 1 per cent. The Marchand test was very accurate in some instances but not nearly so uniformly exact as the Babcock test. In several instances the fat was not released, although the same sample of

milk was tested several times. The Gerber test was not at all accurate in my hands and was discarded after six tests in this series on account of the difficulties attending its use. The object of these analyses was to show the most practical and trustworthy method of fat determination, and tests which were very inaccurate or were difficult of execution were discarded after a thorough trial. The Lefferman-Beam test was given up on account of the small size of the milk tubes.

The Babcock test, therefore, can be relied upon for accuracy and it is the simplest, easiest of operation and most economical test for the use of the physician.

The importance of estimating the amount of total solids in our feeding mixtures is not generally recognized. Some attention is paid in Germany to the caloric value of the food but very little, if any, work has been done along this line in this country. The breast-fed baby gets from 12 to 14 per cent. of total solids from the very start, while the bottle-fed baby has to get along with from 7 to 10 per cent. The caloric value of a litre of mother's milk is 780, while a litre of cow's milk yields but 680 calories. An average four months old breast-fed baby takes about 800 grams of milk in twenty-four hours which is equal to about 625 calories. An artificially-fed baby on a percentage formula of fat 3, proteid 1.5, sugar 6.50 and taking 800 grams (27 ounces) in twenty-four hours receives only 470 calories.

The caloric value of the food is easily estimated from the total solids. Each grain of carbohydrate and of proteid has a caloric value of four and one-tenth, and a gram of fat gives a caloric value of nine and three-tenths.

The total solids can be obtained by evaporation and weighing or estimated from the specific gravity and percentage of fat. The specific gravity can best be ascertained by the lactometer. Some care must be exercised in the reading, and the temperature of the milk should be taken in order to calculate the result at a temperature of 60°F. In a paper read before the Medical Society of the State of New York I described the Richmond sliding rule, by means of which the amount of total solids can be obtained at a glance without indulging in mathematics. This rule has a movable slide in the centre of its upper surface. On this slide are two scales, one representing the specific gravity and the other the lactometer reading. On one side of the stationary portion a scale is placed indicating the total solids. One per cent.

of total solids equals one inch and is divided into tenths. On the lower portion of the same side a temperature scale is marked from 32°F., to 80°F., with an arrow opposite the 60°F. mark. The rule is operated as follows: The lactometer reading and temperature of the milk have been obtained. Set the rule with the lactometer reading that has been observed, opposite the arrow at the 60°F. mark. For the true lactometer reading or specific gravity notice the point on the movable part of the scale opposite the temperature at which the milk stood. For example, if the lactometer reading was 30 and the temperature of the milk 75°F., you would set the lactometer reading, 30, on the 60°F. temperature line, and it would be seen that the 75 line corresponded with 32 on the lactometer scale, which is the correct lactometer reading. The percentage of fat in the milk will have already been determined. The movable scale is adjusted so that the arrow points at the percentage of fat on the scale. With the scale thus adjusted the line indicating the lactometer reading is placed against the required percentage of total solids in the milk. Suppose, for instance, the fat is $3\frac{1}{2}$ per cent., the slide would be moved so that the arrow is opposite the $3\frac{1}{2}$ mark. The specific gravity was found to be 32. Opposite 32 will be found 12.4 which would be the required total solids in the milk.

The Babcock formula has been greatly simplified and consists in dividing the specific gravity of the milk by four, and adding to this one-fifth of the per cent. of fat. For instance, the specific gravity of a specimen of milk is 1,030.8 and the fat is 4 per cent. One-fourth of the specific gravity is 7.7 and one-fifth of the percentage of fat is .8, so by the rule the total solids not fat would be 8.5. Adding the percentage of fat we get 12.5 as the total solids.

TABLE B.—TOTAL SOLIDS.

Number.	Specific Gravity at 60° F.	Total solids, Richmond scale.	Total solids, Babcock scale.	Total solids, actual weight.
1	1029.2	11.3	11.1	10.6
2	1023.8	9.7	9.5	9.8
3	1032.3	13.4	13.23	13.37
4	1030.5	12.2	11.94	12.4
5	1031.8	13.1	12.87	13.24
6	1028.5	10.8	10.6	10.33
7	1025.3	10.3	10.14	9.60

Number.	Specific Gravity at 60° F.	Total solids, Richmond scale.	Total solids, Babcock scale.	Total solids, actual weight.
8	1025.	10.3	10.09	10.
9	1030.2	12.2	11.99	11.89
10	1029.	11.3	11.09	10.56
11	1027.	12.3	12.15	11.9
12	1028.	11.2	11.08	10.78
13	1032.	13.8	13.65	13.64
14	1032.2	13.	12.85	12.87
15	1033.2	13.	12.86	12.64
16	1031.4	13.1	12.89	12.96
17	1027.	11.	10.83	10.80
18	1029.8	10.7	10.5	10.15
19	1031.	12.7	12.5	11.69
20	1028.8	10.8	10.6	10.26
21	1029.8	11.7	11.5	10.83
22	1031.	11.5	11.35	11.36
23	1036.	11.3	11.1	10.96
24	1032.	11.8	11.6	11.75
25	1028.	11.7	11.56	11.43
26	1028.	11.7	11.56	11.44
27	1030.	12.	11.82	11.75
28	1031.	12.	11.84	11.75
29	1028.	10.1	9.8	9.46
30	1034.	13.1	12.9	12.55

The second table (see Table B) gives the corrected lactometer reading or specific gravity, and the amount of total solids computed by the Richmond and Babcock formulas. The amount of total solids obtained by slow evaporation and weighing is given for the purpose of comparison. It will be seen that the results obtained from the formulas are very similar to those obtained by weighing. The Babcock formula gives results slightly lower than the Richmond scale but the difference is very slight and the sliding-milk rule can be used for all practical purposes.

The amount of the proteids can be obtained approximately by subtracting the percentage of fat, sugar and salts from the total solids. The percentage of sugar in mother's milk averages 6.5 per cent., and rarely varies except in a small range. The average amount of the salts in mother's milk is two-tenths of 1 per cent. In cow's milk these figures are different. The sugar averages 4.5 per cent., and the salts, seven-tenths of 1 per cent.

For example, the total solids in a specimen of cow's milk amount to 12.4 per cent., and the percentage of fat is $3\frac{1}{2}$, the solids not fat would be 8.9. Subtract 5.3 the sum of the sugar and salt percentage, and you would get 3.6, the amount of proteids.

While this is a rough method and throws all the error on the proteids, it gives us valuable information, which is reliable enough for ordinary modifications of milk.

Pyelitis in Infants.—Symptoms and Treatment.—Acute pyelitis in infants is not, according to Thomson (*Scottish Medical and Surgical Journal*, July, 1902), very rare. Undiagnosed, it is an alarming illness, but under proper treatment it is a very curable one. The chief facts, apart from the examination of the urine, which suggest that a case may be one of pyelitis, are:—

(1) The pyrexia and the extreme distress, without any sign of organic disease in any other system sufficient to produce them.

(2) The presence of rigors, especially if the patient be a child under two years, if malaria can be excluded.

(3) Any local tenderness or pain on micturition serves, of course, to draw attention to the urinary tract.

The treatment, in the main, consists of rendering the urine neutral by the administration of alkaline remedies as speedily as possible, and in keeping it so until all the symptoms have disappeared. When this is thoroughly carried out the pain and uneasiness vanish, and the temperature rapidly falls and remains below normal. After the pus has ceased to be present in the urine, with ordinary tonic measures the urinary tract seems able to defend itself; the organisms cease to cause trouble, and in time they also doubtless disappear.

The alkaline used by Thomson is citrate of potash. In less severe cases twenty-four grains *per die* may suffice for this purpose, but it is best to begin with thirty-six to forty-eight grains in the twenty-four hours. Although this amount of alkaline is extremely beneficial to the local conditions and rapidly allays both the pain and the fever, it always exerts a depressing action on the general system, and the child's temperature becomes subnormal; it seems flabby and nauseated, not infrequently vomits, and may have diarrhea. No harm, however, follows this temporary depression, and the medicine should be steadily persevered with.—*Therapeutic Gazette*, December 15, 1902.

DEFICIENT PROTEIDS IN INFANT FEEDING.

BY VANDERPOEL ADRIANCE, M.D.,
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An understanding of the proteids and their functions is the key to success in infant feeding. Their provision in proper amounts is requisite. If insufficiently supplied or given in excess they cause far more disastrous results than improper amounts of the other elements.

In human milk the sugar never causes gastrointestinal symptoms by its excess, and is never deficient so as to interfere with nutrition. The fats may be deficient but never persistently and, although at times their excess may cause digestive disturbances, such cases are rare in comparison with the upsets from excessive proteids.

It is the proteids in particular to which I wish to call attention, but not to a consideration of the disturbances caused by their excess, but rather to the malnutrition and untoward symptoms caused by their deficiency.

There are two main classes of foods, nitrogenous and non-nitrogenous, but a third group, namely, the salts will not be overlooked in the present discussion.

Nitrogenous foods are commonly called proteids. Nonnitrogenous foods include fats and carbohydrates and are simply of value as fuel, supplying combustible material for the production of heat and motion; nitrogenous food has a higher function, namely, that of a tissue builder and repairer. Whereas the fat and carbohydrates are nothing more than so much tinder which, quickly consumed, leaves no trace of itself, the proteids have the vital spark which characterizes protoplasmic activity. It is the backbone of the food and upon its sufficient supply not only depend the strength and proper development of the infant but its very life.

An infant whose diet is restricted to the nonnitrogenous elements dies of starvation as the repair and growth of its body are unprovided for. Under the same conditions an adult would also succumb, but the proteid is more necessary for the infant, and a greater proportional amount is needed to meet the de-

mands of the rapidly developing body which doubles its weight during the first four months and trebles it in a year. It is quite right then for the proteids of mother's milk to be furnished in a larger ratio than in the ordinary adult diet, and quite rational to preserve the same increase in milk modification. Although the human infant takes a larger proportion of proteid than its parent it is the most dependent and most slowly developing of all the mammals. Those animals whose milk furnishes the greater amount of proteids have the more rapidly developing offspring and the human race stands at the foot of the list with the lowest per cent. of proteid and offspring which is most tardy in development.

ANALYSIS OF HUMAN MILK.—My ideas of the value of proteids in infant feeding are not theoretical but based upon chemical and clinical evidence. It is some years since I published an extended article on human milk based upon chemical examinations made by my brother, John S. Adriance, Ph.D. Analyses at that time numbering two hundred have now been increased to four hundred and they show certain quantitative changes which take place in mother's milk.

Fats.—To summarize the conclusions arrived at it may be said that the fat percentage was extremely irregular and there appeared to be no definite reason for its variability. The milk of a mother at different times of the day or week showed as widely different amounts of fat as at periods of lactation separated by months. No rule could be fixed for its increase or decrease.

Proteids.—On the other hand, all the other constituents showed a definite variation. It was evident that changes take place which corresponded to the periods of lactation. This was most noticeable in the proteids, which were found to be in excess during the first few days, rapidly diminished during the first two weeks and declined less rapidly but constantly until in the cases charted as normal they were found to fall below 1 per cent. by the eighth month. The salts being largely in combination with the proteids it is natural that they should diminish in proportion, and they were found to pursue the same course, gradually falling off as lactation progressed.

Sugar.—There remains but one other solid constituent to be considered, namely, the milk sugar. This was also found to run a definite course, gradually increasing as lactation progressed. In this respect then it runs a course opposite to the proteids and

salts which, let me repeat again, gradually diminish until a deficiency results.

It is customary to gauge the richness of cow's milk by the amount of fat which marks its value as a butter maker, but it is my purpose to impress upon you that it is not the fat which tells the value of human milk. It is rather the quantity of proteids which should serve as our guide and tell of the functional activity of the breast. As lactation progresses it seems to be no effort for the breasts to secrete fat and milk sugar, but as the powers of milk production are exhausted the proteids are produced in smaller amounts. The milk of prolonged lactation is deficient in proteids and salts. Milk of good quality may be secreted for many months, on the other hand lactation may cease at an early date. When lactation is about to cease the proteids will be found low whether at an early or late date. In either case drying up of the breasts may be predicted by chemical examination. This cannot be stated as an invariable rule, for it is not true where lactation is forced to cease by lack of use. Certain means are at our disposal which indicate when the proteids are offered in insufficient quantity. A chemical examination of the milk will determine the condition, but it is best not to be too hasty in accepting the result of one examination. On the part of the infant there is no one sign upon which reliance can be placed. It is only by a careful consideration of the symptoms that a correct conclusion can be reached.

We have a good sign in the weight of the infant which increases less rapidly than is normal, or is stationary or even records an actual loss, but unfortunately the weight is influenced by many other factors. However, as the weight is the important indicator of the general development of the infant it also warns the observer of poor nutrition. Unfortunately the weight, as has been said, is not a sure guide, and a child may be forced to accumulate an unhealthy bulk, by forcing the carbohydrates, even though the proteids are deficient.

Proteids must be taken in as such. They cannot be manufactured in the infant body. Muscle is proteid. If a body of muscle is to be reared the muscle producing proteids must be sufficiently supplied in the food. Their deficiency is marked by flabbiness and a lack of muscular tone. Every organ requires nitrogen and shows a lowered vitality and a reduction of its

efficiency when deprived of a proper amount of nitrogenous food. The blood for example contains less iron because it requires globulins for the formation of hemoglobin. Anemia results from the deficiency and is a very constant symptom of a deficient supply of those elements which can only come from the food. In fact the entire body suffers and the condition prepares the constitution for disease. Such children are more prone to disease, particularly to those affections of the respiratory and digestive systems which characterize infancy. Children who have been starved of proteids succumb to disease in a way which contrasts strongly with the satisfactory convalescence of the child which has been properly nourished. The latter are the class of patients upon which the physician can rely to combat disease and reward him for his painstaking care; but the former belong to the class which is unreliable, treacherous, and often after demanding exacting care offers no reward, going from bad to worse or, if by chance convalescing, the process is tedious and the way beset with pitfalls.

Starvation of proteids means backward development. The child sits late, crawls late, walks late. There is fretfulness, peevishness, a tendency to perspire about the head, delayed dentition, and tardy closure of the fontanels and sutures, in fact the symptoms of beginning rickets. Rickets is a chronic disease of nutrition, falsely considered as purely a disease of the osseous system. It is ushered in by just the symptoms of malnutrition described.

RELATION BETWEEN PROTEIDS AND SALTS.—The gradual diminution of the proteids and salts which goes on during the process of lactation has already been spoken of. High proteids mean high salts and low proteids mean low salts. The quantity is relatively the same. Toward the end of lactation both will be found deficient. A deficiency of one means a deficiency of the other and points to a very close relationship. In fact most of the salts are in a state of organic combination. Thus the calcium and phosphorus in particular are organically combined with the casein. Such organic relationship appears to be of special value. An experiment performed by Lunin (*Zeit. f. Physiolog. Chemie.*, 1891, Vol. XV., No. 93), proved that mice fed on desiccated milk thrive, while those which were fed on casein plus the inorganic salts of milk died. This is not explained but shows that the form in which the salts are offered is not a matter of indifference. The phosphorus is most essential for it is an active element in the cell

and always present where growth is most active. Of the calcium it can also be said that it is bound in close chemical affinity with the casein. The importance of this element in the infant economy is suggested by the fact that of all common articles of food milk is the richest in lime. A milk which is deteriorating and is low in calcium and phosphorus as well as in iron will naturally predispose to rickets. Voit says that rickets can be caused by withholding the lime salts alone from the food. The old idea was that breast-fed babies never got rickety, but clinical experience teaches that it is no uncommon thing to see such children with rickets of a mild type, particularly cranial rickets. Holt says, "Rickets is not common in nursing children unless lactation is unduly prolonged." No explanation of this phenomenon is offered but experience has convinced me that it is due, in part at least, to a deficiency of the bone-forming elements. It would be difficult to explain all cases of rickets among breast-fed infants in such a simple way. There are so many other etiological factors, that it can only be said that the deficiency in proteids and salts predisposes to rickets.

Having thus spoken of the condition as regards human milk let me draw your attention to a common misconception in regard to the chemical composition of cow's milk. The proteids in cow's milk are ordinarily stated to be 4 per cent. whereas recent analyses prove there are only 3.50 per cent. It is unfortunate that this inaccuracy should have existed so long in regard to the one vital element of the milk. One-half of 1 per cent. of fat or carbohydrate is not of great importance but the error is lamentable, because referred to the proteids, and particularly because it is an overstatement rather than an understatement of the per cent. present. In top milk, moreover, which is popularly used in home modification, the deficiency is still more, for the fat crowds out the proteid and the richer the cream, the lower are the nitrogenous constituents. A cream containing 20* per cent. fat has only 3 per cent. of proteids, and a cream containing 40 per cent. of fat has a still lower per cent. of proteids, namely, 2.25 per cent. In spite of the diminution of the nitrogenous constituents in cream, modified milk has been, and is yet, made under the misconception that all cream and top milk contains 4 per cent. of proteids.

To demonstrate this inaccuracy several of the milk mixtures at the Nursery and Child's Hospital were analyzed and the pro-

* Analyses made by J. S. Adriance, Ph.D.

teids were always found lower than the prescription called for. Laboratory milk was then tested and the same error was always found. A bottle supposed to contain 1 per cent. of proteid showed the presence of but .7 per cent. and the second supposed to contain .66 per cent. showed only .44 per cent. When it is considered that this not only means a gross inaccuracy in the proteids prescribed but also less salts in combination with them, an explanation is at hand for some of the condemnation of our milk laboratories, and it is no wonder that our results are disappointing. If on the other hand, due allowance is made for this discrepancy many artificially-fed infants will be saved from a state of malnutrition.

LOW PROTEIDS IN ARTIFICIAL FEEDING.—The profession has been warned so often against increasing the amount of proteids on account of possible digestive disturbances that they appear to be too careful in their administration, and by guarding against gastrointestinal symptoms they often commit the other error of starving the child of nitrogen, which results in a nutrition below par. This condition, little guarded against, is especially apt to come about after a severe gastroenteritis which the physician has fought by a constant diminution of the curd-forming elements. Often he may even think it has been brought about by a too zealous increase of the proteids. During convalescence from such an illness he reluctantly permits a tardy increase of the proteids and commits an error little better than his first. Such a state of mind accounts for the stationary weight of many infants who only need the proteids increased to gain the much desired weight and strength. Moreover, handbooks on infant feeding have so educated many mothers and nurses that they attribute every gastrointestinal symptom to what they call too strong milk and add water to each bottle until a real illness actually develops.

In infants nursing at the breast I have repeatedly seen intestinal symptoms with frequent curdy, slimy movements which could be attributed to nothing but a deficiency of nitrogen in the milk, and chemical examination has proved the diagnosis of the condition to be correct. Moreover, a change to a modified milk with increased proteids has cured the condition.

Two personal experiences with bottle-fed babies may impress my point. One three months of age had practically the same

weight as at birth and was taking a 4:7:2 mixture when brought from the country to see me. The movements were somewhat frequent and curdy. At my advice the child was put on a 3.6.1. mixture and gained one pound in the next month. When the child returned to the country at the end of that time the physician saw such a marked improvement in the child's condition that he considered low proteids indicated in perpetuity and the weight again remained stationary. No allowance was made for the fact that at four months an infant needs 2 per cent. of cow's proteid to maintain the nitrogenous equilibrium, and it was only after repeated advice from me that the proteid was run up and a satisfactory and steady gain in weight was recorded.

A premature infant that had been artificially fed by me from birth gained steadily until seven months, then fretfulness, anemia, stationary weight, four or five green, slimy and curdy movements a day began. The mother had faithfully studied the latest books on how to raise her children and, convinced of the fact that the child was getting too high a per cent. of proteids, cut them down. The feeble digestion of the infant had never been able to manage the usual amount which the gastrointestinal tract of a full term infant takes care of, but as the food was gradually reduced by the mother all the symptoms became worse. At last I was called and advised a rapid increase in the strength of the milk and the gastrointestinal and all other symptoms rapidly subsided and a steady increase in weight began.

The diarrhea which results from deficient proteids is not watery nor is it accompanied by fever. It is preceded by a period of lowered vitality and, as a rule, anemia, mild fretfulness, peevishness, and stationary weight, forewarn the practitioner. Oftentimes it is a very nice point to decide whether such movements are really due to excessive proteids or to their deficiency and it is only by careful consideration of the condition and by analysis of the symptoms that a correct conclusion will be reached.

LOW PROTEIDS IN BREAST FEEDING.—When an infant at the breast shows symptoms of deficient proteids in the food, what can be done? In the first place an attempt should be made to so influence the mother's nutrition that her milk will improve. If the milk is deteriorating early in lactation a great deal can be accomplished. The hygiene of the mother's life is of great importance. Sedentary habits should be overcome and exercise in the open air advocated. Neurasthenia, so common in primiparæ, can be benefited by

an experienced nurse who will relieve the parent of as much anxiety as possible. Anemia is easily benefited by iron.

Very little attention is ordinarily given to the mother's diet. It needs closer oversight than it is usually given and a great deal can be accomplished in this direction. The diet should be nutritious yet simple, containing a high proportion of meat, eggs and milk. Malt has been found of great practical value.

Later in lactation not so much can be accomplished. The breast feedings may be supplemented by a bottle containing cow's milk properly modified. Beef juice may be prescribed. We have known for sometime that after the eighth month of breast feeding it has a high clinical value. This lies in the fact that it supplements the deficient proteids of the mother's milk.

In mother's milk the proteids are not as directly under control as in modified milk but in using the latter we should prescribe judiciously with the confidence born of experience and use its constituents with definite ideas of their respective values for nutritive purposes. The proteids are the constituents which should demand the greatest attention. Their high function should be realized and guarded by proper amounts of the fats and carbohydrates, so valuable for fuel but more valuable as proteid spacers.

Strangulated Hernia in Infants.—Estor (*Revue de Chirurgie*, June 10, 1902) presents statistics of strangulated hernia occurring in infants ranging from the new-born to the second year of life, and thus draws his conclusions. Strangulated hernias while rare in infants are by no means the exception, as evidenced by the reports of 232 cases. The rarity of the accident of strangulation is perhaps explicable by the feeble resistance of the tissues which form the sac of the hernia. In strangulated hernias of children the appendicular and the cecoappendicular varieties are very frequent.

In treating a strangulated hernia in infants reduction by taxis should first be attempted, though herniotomy is usually necessary. The mortality of this operation is somewhat less in the first two years of life than in the adult.

In infants the constriction is less marked, and the time during which herniotomy may be attempted with success is more prolonged than in the adult.

The prognosis of these cases must be influenced by the general condition of the child.

In cases of strangulated appendicular hernias, the appendix should be removed, even though normal, unless a rapid operation is imperative.—*Therapeutic Gazette*.

A NOTE ON ABDOMINAL AUSCULTATION.*

BY HENRY L. K. SHAW, M.D.,

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No mention is made of abdominal auscultation in any of our text-books on diseases of children. Inspection, palpation, and percussion of the abdomen are dwelt upon, but no importance seems to be placed on the results obtained with the stethoscope.

In infants and very young children the respiratory sounds are transmitted and can be distinctly heard all over the abdomen. All adventitious sounds, especially from the lower lobes of the lungs, and the lower and diaphragmatic portions of the pleura, are also transmitted. This fact is not generally recognized.

The respiratory sounds are synchronous with the respiration and are easily differentiated from intrainestinal sounds due to gas, fluid, etc.

My attention was first directed to this fact over a year ago in a case of what afterwards proved to be lobar pneumonia. A large, strong, nine months old baby was taken suddenly ill and went into a state of collapse. The abdomen was distended and there was no movement or passage of gas after a high enema and glycerin suppositories. The respiration was rapid with an expiratory grunt. The temperature was subnormal at first, but later rose to 103°F. Here was a condition apparently pointing to some abdominal disturbance. Four physicians were in consultation within twenty hours after the abrupt onset and agreed that the lesion was below the diaphragm, and that probably there was a general septic peritonitis. This conclusion was reached mainly on account of the results of abdominal auscultation, as a fine friction rub could be heard plainly all over the abdomen and below the diaphragm, posteriorly. Shortly after the consultation the baby had a large movement, and the abdominal symptoms improved. Crepitant râles were detected over the base of the left lung the next day, and the case developed into a typical attack of lobar pneumonia, followed by empyema. The râles could be distinctly heard over the abdomen for several days. This was a

* Read at the meeting of the American Pediatric Society, Washington, D. C., May 12, 13 and 14, 1903.

case of central lobar pneumonia at the base and it is interesting to note that the râles were heard over the abdomen before they could be detected over the chest.

Since this case I have listened over the abdomens in a large number of infants. Among these were 2 cases of lobar pneumonia at the base where the râles were transmitted as distinctly as in the first case described. In these cases several experienced diagnosticians auscultated the abdomen and corroborated my findings. Râles from acute bronchitis can be plainly heard over the abdomen. The more distended the abdomen the clearer are the transmitted sounds. The respiratory sounds are louder and more distinct in infants and the abdominal type of respiration is the rule. This, with the large size of the liver, may account for the transmission of the respiratory murmur.

Attention is directed to this point on account of its bearing on diagnosis. Disease, as manifested in infants, differs as do the physical signs from disease in later life, and all possible sources of error in the interpretation of physical signs should be borne in mind.

Circumscribed Scleroderma in a Child.—J. Brito Foresti (*Revista Médica del Uruguay*, January) reports the case of a child, aged thirteen years, affected with scleroderma, or morphea, localized above the upper lip and on the cheek. The affection commenced with a small patch above the left side of the lip and extended from the junction of the skin and mucosa to the nares. A second patch, about 3 cm. in diameter, appeared later, upon the left cheek below the left labial commissure; the two patches finally coalescing. Examination revealed an infiltration of the skin, this being hard and lardaceous to the touch. The centre of the lesion was pale, yellowish, and somewhat depressed; while it was surrounded by a border, slightly elevated above the level of the healthy tissue, and having the characteristic violet hue. The condition seemed in no wise to affect the general health of the patient, and the hardness of the skin did not interfere with eating. The only etiological factor which could be invoked, in the case, was a traumatism of the lip sustained a year previous to the onset of the disease. At the time of writing the report, the lesion showed signs of retrogression.—*New York Medical Journal*.

Clinical Memoranda.

REPORT OF A CASE OF THYMUS ENLARGEMENT IN AN INFANT. SUDDEN DEATH; AUTOPSY.

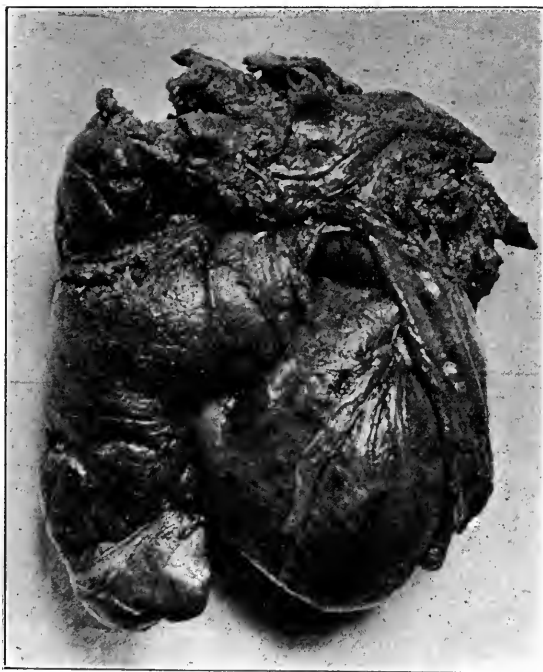
BY ELEANOR C. JONES, M.D.,

Visiting Physician, Children's Ward, Woman's Hospital, Philadelphia.

W. A., *aet.* three and a half months, was admitted to the Woman's Hospital, of Philadelphia, on April 12, 1903, with his mother, who was sent to the hospital to be operated on for gallstones. The baby was, at the time of his admission, in his usual health and was brought to the hospital only because he could not be properly cared for at home. While in the hospital he seemed in fairly good condition until about six o'clock on the evening of April 15th, when I noticed that he was very pale, that his head was thrown backward, and that he was breathing very rapidly, but quietly. His temperature was taken and found to be only 100°F. I carefully listened over his chest and found his lungs normal, and then thought his rapid respirations might be due to some reflex alimentary disturbance, and so ordered that one-half grain of calomel should be given in divided doses, and also instructed the night nurse to watch him carefully. She saw him at short intervals during the night and reported that his breathing continued rapid and that he was blue and distressed looking. She said he repeatedly cried out, but took his nourishment very well. About eleven o'clock he had a crying spell that lasted about one-half hour, but he quieted down after that and fell asleep. About three o'clock in the morning she looked at him and found him dead. He must have died very quietly for the nurse was in and out of the room at short intervals during the night and would have seen and heard him if he had struggled any.

AUTOPSY.—The postmortem examination was made by Dr. Clara T. Israel, director of the clinical laboratory of the Woman's Hospital. The body was that of a fairly-developed infant of three and one-half months. He had a well-shaped head and chest. A small area of craniotabes was present in the right lambdoidal suture. A slight rachitic rosary was present. The thymus gland

was found to be very much enlarged. It extended over the pericardium to its lower border. The length of the gland was 7 cm., and at its widest part it measured $3\frac{1}{2}$ cm., and was 2 cm. in thickness. The bronchial lymph nodes were much swollen. The mesenteric lymph nodes were soft and very much enlarged, varying from the size of a pea to that of a bean. The in-



SHOWING ENLARGED THYMUS GLAND, OVERLYING BASE OF HEART AND REACHING TO APEX.

guinal lymph nodes were also enlarged. The spleen was enlarged, measuring 4 cm. by 7 cm. The liver was enlarged and showed areas of fatty degeneration. The stomach was dilated. The lungs, heart, kidneys and intestines were all normal in appearance.

FAMILY HISTORY.—The family history of the infant was extremely bad. Both grandfathers died of consumption, and the mother of the infant was one of a family of twenty-two children and nearly all of those who lived to adult life became confirmed

alcoholics. The patient was one of a family of six delicate children, four of whom died in early infancy of various acute diseases.

PREVIOUS PERSONAL HISTORY.—This infant was said to have been always delicate. He had been fed on one of the artificial foods since he was six weeks of age. On the evening of April 11th, he had three slight convulsions, but there is no history of laryngo-spasm occurring at any time during his life.

Although only three and one-half months old he showed some of the early signs of rickets, he perspired a great deal about the head, was fretful and had frequently hard, dry stools. His physical examination showed a spot of craniotabes and slight beading of the ribs, and he was markedly pale. His nutrition was evidently seriously affected.

In the past few years much has been written concerning the relation of enlarged thymus gland to sudden death in infants. Different writers have been divided in their views. That the gland can enlarge sufficiently to produce death by pressure on the surrounding parts seems to be proved by cases reported by Koenig, Siegel, Jacobi, Grawitz and others. Jacobi, in his monograph on the gland (Transactions of the Association of American Physicians, Vol. iii.), states that in an infant of eight months the distance between the manubrium sterni and the vertebral column is only 2.2 cm., a space which he thinks might be completely filled by a large and congested thymus. Some of the German writers believe that death is caused by pressure on the trachea or on the heart or great vessels; others believe that death is caused by pressure on the nerves, especially the recurrent. Paltauf, of Vienna, denies that the enlarged thymus can cause death by pressure. He thinks the enlarged thymus is only one of the symptoms of a disturbed nutrition. He describes a condition which he designates as "status lymphaticus," in which all the lymph nodes, the spleen and thymus gland are in a state of hyperplasia. This condition, clinically, is characterized by a lowered vitality and unstable equilibrium, and this constitutional anomaly is attended, he thinks, by changes in the nerve centres controlling the action of the heart, so that paralysis of the heart may ensue from very slight causes. Beneke, summing up the different views, believes that sudden death with thymus enlargement may occur in three ways: First, compression of the trachea; second, laryngo-spasm (a convulsive condition not due to pressure); third, a lymphatic constitution.

The case I report, properly belongs, I think, to the cases described by Paltauf as "status lymphaticus," for the lymph nodes, including the thymus, were found generally greatly enlarged. The alcoholic and consumptive family tendencies were probably the remote causes of this condition, the child inheriting the consequences of these diseases and his bad hygienic surroundings continuing their development. He was also suffering from beginning rickets, both conditions showing how seriously his nutrition was affected.

There is no evidence that the enlarged thymus caused his death by direct pressure on the trachea, for there is no history of dyspnea or "thymic asthma," and at the autopsy the trachea was found normal in contour. The autopsy showed, however, that there must have been considerable pressure on the great vessels and the base of the heart, for the hypertrophied thymus gland made direct and decided pressure on these parts.

The manner of his death was that of heart paralysis, he died quietly and quickly. Just such a death as Paltauf and others have described as frequently occurring in the condition of status lymphaticus, but in this case it would seem that the large thymus by directly pressing on the great vessels and heart may have been a direct factor in causing the sudden death.

Concerning the Assimilation of Fat in the Organism.—

Leo (*Berl. Klin. Wochenschr.*, December 8, 1902) gives the methods and results of his investigations on the digestion of fat. He found that fat is partially changed to glycerin in the stomach and intestines by the action of steapsin. The fatty acids and glycerin are absorbed in the intestines. A portion of the glycerin is absorbed alone. He examined the feces of a large number of persons who had ingested a considerable quantity of glycerin, yet never found a trace of that element. In disturbances of the digestive tract, the assimilation of fat may not occur, and it may be discharged in the feces unchanged. On the other hand, persons who indulge in large quantities of fat may develop intestinal disorders without decreasing the fat metabolism. The conversion of fat in such cases may cause diarrhea by irritation of the intestinal mucous membrane. Normally no glycerin occurs in the urine. Leo found glycerin absent in the urine of all pathologic conditions excepting diabetes mellitus.—*American Medicine.*

REPORT OF A CASE OF TONSILLAR ULCER OF VINCENT.

BY LAWRENCE T. ROYSTER, M.D.,

Attending Physician in Diseases of Children to the Hospital St. Vincent de Paul,
Norfolk, Va.

The tonsillar ulcer of Vincent is of sufficient practical importance and rarity to make the report of any carefully observed case of interest to the profession. I say rarity, for only a few cases have been reported in this country and the greater part of our knowledge on the subject comes from abroad where several critical studies have been made. I believe that with careful study we will find this to be a commoner affection than is now supposed.

The term "tonsillar ulcer" is a misnomer, though for convenience I have used it in this report. It has been observed on the buccal mucous membrane and tongue and I see no reason why it should not occur on any mucous surface. The title of Mayer's paper in the *American Journal of the Medical Sciences* of February, 1902, viz.:—Affections of the Mouth and Throat Associated with the Fusiform Bacillus and Spirillum of Vincent, is more accurate.

N. E., colored, female, seven years old. Family history negative. Previous health good with the single exception of pertussis at the age of three years. On April 7th child's mother brought her to the clinic of St. Vincent de Paul's Hospital, stating that she had a sore throat which could not be cured, and because of this, she thought the child must have diphtheria. Two weeks prior to this the patient complained of soreness on swallowing and the mother had noticed the lymph nodes of the neck enlarged. She then looked in the throat and discovered a large white patch on right tonsil. This, she stated, had remained unchanged since first seen.

EXAMINATION.—Child well developed and well nourished. Pulse and temperature normal; apparently no indisposition beyond pain on swallowing. The lymph nodes at the angle of jaw on right side are greatly enlarged; on right tonsil there is a patch of grayish deposit, nearly as large as the tonsil, slightly depressed

and having a very ragged outline. The edges are redder than the normal color of the tonsil and on removing the membrane or rather slough, as it really seems to be, which comes away without resistance (but has a great tendency to rapidly reform), we see the ulcerated and bleeding base of the lesion. The tonsil is hard and indurated.



A STAINED SMEAR SHOWING VINCENT'S BACILLUS AND SPIRILLUM.

The first inspection convinced me that I had to deal with a condition out of the ordinary, although it was at once strongly suggestive of both diphtheria and syphilis. I discarded the idea of diphtheria, because of its having lasted two weeks and because of the normal pulse and temperature, although I took a culture and sent it to the Board of Health, as is my custom in all ulcerated conditions of the throat. This was free from the Klebs-Löffler bacillus next morning. I also abandoned the thought of syphilis, chiefly because of the age of the patient

(seven years) for I must say the appearance was more that of a syphilitic ulcer than anything else I had seen. My next thought was of Vincent's ulcer and from the edge of the ulceration I made a smear which I stained with dilute carbol fuchsin and then found the fusiform bacillus and spirillum of Vincent. A drawing of the microscopic findings is herewith reproduced.

As to treatment I advised hot gargles of normal salt solution and applied tincture of iodine locally, as advised by Mayer in the paper already referred to. The ulcer had entirely disappeared in three days after treatment was instituted.

DIFFERENTIAL DIAGNOSIS.—The practical importance of this condition will at once appeal to the reader, for it may readily be mistaken for either diphtheria or syphilis. The diagnosis from diphtheria is comparatively easy. The normal pulse and temperature and the absence of pronounced indisposition point to a non-diphtheritic lesion. The marked tendency to chronicity makes it certain that it is not diphtheria, for it is probable that the physician will not be consulted until the condition has existed some time. The diagnosis from syphilitic ulceration is a much more difficult matter; so much so that I believe the average practitioner would pronounce it specific had his attention not been previously directed to Vincent's bacillus. A certain diagnosis from syphilitic ulceration can only be made by the microscope.

The Cerebrin Treatment of Epilepsy.—Lion (*Deut. Med. Wochenschr.*, December 11, 1902) reports the results of Poehl's cerebrin treatment in 15 cases of epilepsy. In 2 cases there were no more attacks after the first dose of the drug; 5 patients were very much improved; in 7 patients the attacks became fewer and lighter; in 1 patient their number apparently increased, but their character changed from grand mal to petit mal. All of these patients were suffering from grave types of the disease. The extract is given either in tablet form or as subcutaneous injections. Each tablet corresponds to $4\frac{1}{2}$ grains (0.3 gram) and he gives as many as 6 tablets daily after the patient has been under treatment for 3 weeks. After the desired result is attained he orders 6 tablets twice weekly. The injections are given every second or third day, depending on the case.—*American Medicine.*

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THE MILK SUPPLY OF COPENHAGEN.

In the *Revue d'Hygiène et de Médecine Infantiles*, No. 6, 1902, deRothschild presents a most interesting report, which he prepared at the request of the French minister of agriculture, upon the subject of the milk supply of Copenhagen. The report deals especially with the operations of two companies, the Kjøbenhavns Mælkeforsyning and the Danske Mælke Compagni; the former dealing in fresh milk, the latter in pasteurized milk. The Kjøbenhavns Mælkeforsyning is declared to have served as the model not only of its rival and neighbor but also of many similar concerns founded in foreign lands.

The most unusual feature in the workings of this company is that it takes no direct part in the production of the milk that it sells. All its milk is obtained from farmers living in the immediate neighborhood of the city. Its control of the quality of the milk is effected entirely by means of the contracts that it makes with the farmers. These contracts stipulate that the farmer shall observe most rigid regulations with regard to the healthfulness of the cattle whose milk is to be offered to the company, their feeding and care in general, the care of the milk after it is drawn, the hygiene of the stables, the health of the employees, the cleanliness of the milking process, and every circumstance known to influence the chemical or bacteriological purity of the milk. Compliance with the stipulations of the contracts is assured both by tests of the milk received and by frequent visits of inspectors of the company to the farms and dairies. The milk thus obtained is delivered to stations from which it is collected and brought to the main establishment in the city. The hours of milking, the cooling of the milk, the time of delivery to the collecting stations, etc., are all regulated by the contracts. The milk is transported in cans. Upon their arrival in the city these cans are opened, the temperature, specific gravity, etc., taken to assure that the milk complies with the required standard; and, whenever advisable, specimens are subjected to bacteriological examination. One unusual step in this relation is the tasting of the milk by the official "taster." Any milk having an unnatural taste is rejected. After the inspection the milk is filtered through several layers of sand and then filled into bottles or cans for delivery to the customers. The delivery is made by wagons specially adapted to the purpose and owned by the company itself. Every can or bottle bears a tag showing the date upon which it was put up. Due provision is made for the cleansing of the empty cans and bottles, but apparently they are not sterilized.

The company also furnishes a modified milk for infants. This milk comes from selected cows and is looked after with special care. The mixtures offered are only four in number, one of milk

to two of water, equal parts milk and water, two parts milk and one water, and three parts milk to one of water. The two first mixtures are put up in bottles holding 135 and 150 grams; the two last in bottles holding 175 and 180 grams. The milk is pasteurized at 85° F., for one-half hour.

The company also sells cream and skimmed milk. Whatever milk remains unsold at the end of a day is promptly made into butter. The whole milk is sold for a trifle over 4.5 cents a litre. The company handles about 30,000 litres per day.

The peculiar features of the work of the other company are that it gets its milk from a greater distance, that by certain patent methods the milk is partially frozen for transportation, that upon arrival in the city it is warmed, filtered, and finally pasteurized. In other respects the methods of dealing with the milk are practically the same as those of the original concern. The Danske Maelke Compagni uses about 60,000 litres daily, so that between these two companies about 100,000 litres of milk of guaranteed purity are daily supplied to Copenhagen. DeRothschild contrasts the milk supplies of Paris and Copenhagen in a manner very favorable to the latter. The Kjobenhavns Maelkeforsyning was originally founded as a philanthropic society but has since been put upon a purely business basis and these two companies are now engaged in the purveying of pure milk as a paying business. In this fact as well as in their methods lies much of interest and instruction for us. What is practicable in Copenhagen must be practicable in every city in this country. If philanthropy will not lead dairymen to produce pure and clean milk, the interest of their pockets ought surely to do so. The educational work being done all over the country will result in larger demands for milk of a guaranteed character, and we may be sure that the dairymen will meet the situation. It is a source of just pride that physicians are everywhere in the United States the leaders in this movement, of such vital importance to the whole community.

Bibliography.

Plain Hints for Busy Mothers. By **Marianna Wheeler.** Illustrated. Pp. 54. New York: E. B. Treat & Co. Price, 35 cents.

This is a practical little book intended for mothers who are not able to have the aid of a nurse. It is written in a clear style and cannot fail to benefit all who read it. Most of the instruction is so practical that once read it will be recalled. It is a pamphlet that should be distributed by dispensaries and nursing guilds to aid in lessening infant mortality.

Revue D'Hygiene et de Medicine Infantiles et Annales de la Polyclinique H. deRothschild. Directeur, **H. deRothschild.** Secretaire de la Reduction, **Ch. Mettling.** Illustrated. Paris: Octave Doin. Subscription (foreign), 14 francs.

This review appears every two months. It is published in six fasciculi, each containing five or six papers, forming a yearly volume of about 500 pages. The fasciculi, illustrated by figures or by plates in black or in colors, contain original papers, abstracts of the most recent work in pediatrics, both French and foreign, and finally a bibliography of the subject. Among the collaborators announced are Baginsky, Concetti, D'Espine, Haushalter, Hutinel and Monti. The sixth fasciculus of Vol. i. has been received. It contains original articles on the milk supply of Copenhagen by deRothschild, on the hygiene of the creche by Beluze, and on infantile scorbutus by deRothschild and Abramoff. There are twenty-five pages of interesting abstracts and no less than twenty-four pages of bibliography, covering American as well as continental literature. The paper and press-work are unusually good, the illustrations are superb, and altogether the magazine is calculated to constitute a very valuable addition to the literature of pediatrics.

The Diseases of Childhood. By **Jules Comby,** Physician to the Hospital for Sick Children. Edited by **J. Rueff.** Fourth edition. Pp. 1,175. Paris, 1902.

In his preface the author lays emphasis on the fact that this large volume represents the fruits of nineteen years' experience,

twelve of which have been spent in dispensary service, seven in hospital work. The breadth of this experience is reflected in the scope of the work, which deals not only with the general diseases of childhood but with the affections of the skin and nervous system, usually considered the field of the specialist. Nothing seems to have escaped the author's observation. We find sections dealing with such rare affections as cancer of the stomach, the bites of serpents, osteopsathyrosis, pulmonic osteoarthropathy, etc. To a practitioner there must appear a certain disproportion in devoting space to the extremely rare affections, while pulmonary tuberculosis is dismissed in eight pages and the intestinal disorders in twenty. In fact one of the most striking features of the book is the absence of adequate treatment of the problems of infant feeding and the digestive disorders of children, as we are accustomed to see them.

The large volume is divided into two main parts, the first dealing with general disorders, the second with local; each part is in turn divided into several sections. The three sections of the first part treat, in order, the infectious diseases, the dystrophies which are classified as the hereditary, including scrofula, arthritism, etc., and the acquired, such as anemia, scurvy, rickets, etc., and, finally, the intoxications. This last section is entirely new, and in it are considered poisoning by various drugs, including alcohol, fecal intoxication, serpent bites, etc. The second part deals with the local disorders, and in it the regional classification in general use is followed. In this part extensive consideration is given to the affections of the skin and nervous system.

The paper and press-work are excellent, but in a work of such size one is struck by the entire absence of illustrations.

A Supplement to the Biedert Cream Mixtures.—Gernsheim (*Die Therapie Der Gegenwart*, February, 1903) describes ramogen, a paste-like, preserved, artificial preparation, corresponding to the Biedert cream mixtures. A milk somatose ramogen has also been manufactured. Case histories are given to show good results from the use of these preparations, diluted to different strengths. This preparation seems to be especially well digested by infants with whom the Backhaus milk disagrees. It is also excellent as a food for overcoming summer diarrhea, acute and chronic gastrointestinal diseases. But these preparations are not suited for every child. In some cases buttermilk is much more effective.—*Philadelphia Medical Journal*.

Society Reports.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.—LONDON.

Meeting of Friday, March 20, 1903.

DR. HENRY ASHBY, CHAIRMAN.

MR. HENRY J. CURTIS showed, on behalf of Mr. Stansfield Collier, a male infant, aged eight months, born prematurely at eight months, the membranes having ruptured a fortnight previously. There was

EXTREME DIMPLING OF THE SKIN

over the olecranon processes and over both sides of the knees. Both upper and lower limbs, particularly the legs and thighs, showed very marked lateral compression, also seen in the skull; the forehead being in addition flattened from before back, and the tip of the nose depressed as is frequently observed after the cure of hare-lip in a severe form. A vertical groove existed over the middle of the body of the right inferior maxilla, as also of the posterior internal aspect of the right leg in its lower third. This groove in the leg, taken with a slight one surrounding the remarkable and pendulous buttocks, it was suggested, might be accounted for as the result of the funis constricting the buttocks and then passing down along the back of the leg. Both feet were clubbed. A slight degree of skin dimpling is not uncommon. It is probably the result of amniotic adhesions occurring when there is deficient liquor amnii. In the present instance, the extreme degree and universality of the compression effects would imply very considerable deficiency in the amniotic fluid, long anterior to the rupture of the membranes. A further point of interest was the evidently stunted condition of the bones of the limbs, especially the arms and forearms and, to a less extent, of the legs, when contrasted with the body length.

DR. G. A. SUTHERLAND showed a case of

INFANTILISM.

The patient was a boy eleven years old who weighed twenty-eight pounds and was thirty-nine inches in height. At the age of three

years he weighed nine pounds. The body and limbs were well formed and the only local indication of disease was a clubbing and blueness of the fingers. The expression of the face was infantile and the mental condition was backward.

DR. SHUTTLEWORTH suggested thyroid treatment, although he admitted that the child showed no marked signs of cretinism.

DR. A. E. SANSOM said the absence of marked signs of heart disease did not exclude that condition.

DR. ROBERT HUTCHISON showed (*a*) a girl of five and one-half years of age who exhibited

GREAT EXCITABILITY, INCOHERENCE AND RESTLESSNESS, with a tendency to destructiveness and to repetition mimicry. The mother alleged that the child had been perfectly well until two years previously when another baby was born and from that time onward she had been in her present condition. Dr. Hutchison was inclined to regard the case as one of chronic mania, as the child appeared to have been quite normal mentally for three years after birth. There was no history of any illness or injury to account for the condition. (*b*) A baby, aged five weeks, suffering from

ENLARGEMENT OF THE LEFT SIDE OF THE TONGUE.

The left arm and leg were also distinctly thicker than the corresponding limbs on the opposite side, but there was no want of symmetry in the face, or, so far as one could see, in the trunk. The family history and general health were good. The case was apparently one of hemihypertrophy.

MR. H. J. CURTIS read a paper upon a case of

CONGENITAL PAROSTEAL SARCOMA,

arising in connection with the acromion process of the left scapula, removed from a boy aged five and three-quarter months, the patient being also exhibited to the Society. At birth the tumor was as large as a small hen's egg. At the date of the operation it formed a swelling as large as a good-sized orange, with several smaller nodules. It extended from the point of the shoulder to the lobe of the ear and could not be moved independently of the scapula. It was eleven inches in horizontal circumference. On removal it was found to be slightly connected with the acromion process, close to the acromio-clavicular articulation; it was, therefore, a parosteal growth, the rarer variety of peripheral (as dis-

tinguished from endosteal) sarcomata, its tendency being only secondarily to invade the bone. Microscopically, it proved to be a mixed, spindle and round-celled sarcoma. Attention was also drawn to a type of tumor having a somewhat similar appearance, microscopically, sometimes seen in young children, which though it recurs, does so very slowly, and grows very slowly. The extremely low malignancy sometimes observed in such fibrocellular tumors, as Mr. Stansfield Collier prefers to consider them (having such a case still alive four and one-half years after the first operation) is a point to be remembered in attempting to make a prognosis.

DR. HENRY ASHBY and MR. SYDNEY STEPHENSON read a paper upon

ACUTE AMAUROSIS FOLLOWING INFANTILE CONVULSIONS.

They described a series of cases of amaurosis, which they believed to be directly due to severe convulsions. Thus, the infants develop a series of convulsions with coma (resembling the status epilepticus of adults) and, upon recovery, are found to be blind and sometimes to be hemiplegic or aphasic. There was no evidence of meningitis. Ophthalmoscopic examination yielded negative results. The authors distinguished this form of blindness from the amaurosis, also without ophthalmoscopic signs, which may accompany or follow posterior basal meningitis in infants. They concluded (1) that there is a form of post eclamptic amaurosis due to anesthesia of the visual centres, occurring in infants; (2) that the convulsions, which may be due to various causes are apt to be severe and accompanied by coma; (3) that the amaurosis may be associated with aphasia and paresis of hemiplegic distribution; and (4) that the amaurosis is for the most part transient.

DR. A. E. SANSOM suggested as cause for the blindness either a poisoning or a vasomotor ischemia of the nervous mechanism involved.

MR. ALFRED H. TUBBY read a paper on a case of

PNEUMOCOCCAL ARTHRITIS,

affecting a male infant of fourteen weeks of age. The child was admitted with pain and swelling of the right knee and a temperature of 102°F. Ten days previously the child, who had hitherto

been healthy, became fretful and cried, especially when the right leg was touched and the mother said he was treated for rheumatism. The right leg became red and swollen. There was no history of an accident or injury. On admission the child was evidently very ill and the right knee was bulbous, fluctuating, very red and tender. Two lateral incisions were at once made and much pus was evacuated. A drainage tube was passed through the joint. For ten days the patient lay in a perilous condition, but the temperature gradually fell to normal and the discharge diminished. Careful and repeated examinations of the chest were made but no signs of pneumonia could be discovered. The pus from the joint on examination showed diplococci and cultivations gave the appearances of micrococcus pneumoniae. Dr. Lazarus Barlow was of opinion that the pus contained this organism in pure culture. The speaker then referred to the literature of the subject and alluded to 2 other cases which had been under his care at the Evelina Hospital. In one pneumonia preceded a pneumococcal coxitis and in the other case pneumococcal arthritis occurred in the knee without the development of pulmonary symptoms. He also said that these cases threw light on the pathology of acute infective arthritis of infants.

A Century of Arm-to-Arm Vaccination.—Eduardo Liceaga (*Indiana Medical Journal*) describes the method of arm-to-arm vaccination which has been practised for 100 years in Mexico, the greatest care having been exercised as to the choice of candidates for propagating the virus. As to the results, it has been observed, in the first place, that persons vaccinated in this way remain immune during their whole lives. When there is a widespread epidemic it is stopped promptly by at once vaccinating all persons who have not been previously so treated. The immunity which vaccination confers on infants is preserved during the whole of their lives. No Mexican physician has ever died of smallpox, even if he has been in practice for forty years. The same immunity has been observed in male and female nurses who attended smallpox patients. Experiments undertaken by order of the Supreme Board of Health of the City of Mexico show that vaccinations succeeded exceptionally well. Of 1,307 revaccinations only twenty-three were successful.—*Philadelphia Medical Journal*.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting of Tuesday Evening, April 14, 1903.

DR. D. J. MILTON MILLER, CHAIRMAN.

DR. GWILYM G. DAVIS read a paper on the

RESULTS OF THE BLOODLESS REPOSITION OF CONGENITAL LUXATION OF THE HIP,

with a report of cases. The first patient was a boy nearly six years of age. Two years and five months ago, after eight weeks' extension in bed with four pounds, reposition was effected by flexion, abduction, and outward rotation, as advised by Paci, with tenotomy of the adductor longus. Repeated relaxations occurred, and the ultimate result was an anterior upward transposition, with a shortening of 2 cm., disappearance of the lordosis, and an excellent functional result.

The second patient was over six years of age, and had had a double luxation. Replacement was carried out by the Paci method, as in the first case. One hip remains in place, and two years and five months after the operation, is apparently normal in every way. The other hip is transposed anteriorly and upward. The lordosis is nearly or quite gone, and the functional result is excellent, except for a slight limp.

The third patient was a child of three years, with a double luxation, both having been replaced by the same manipulations as in the preceding 2 cases. One hip remained in place. The other repeatedly came out of place, so an apparatus was applied. The condition of the one hip was perfect, six months after the operation. The patient was then lost sight of.

The fourth patient was a child eight years of age. One hip was replaced five years ago by the Paci method. This has remained in position ever since, and appears absolutely normal. The other was operated upon and fixed in an anterior transposition.

The results of many observers show that absolutely perfect results are rare. According to Kirmisson, Hoffa, Kölliker, Schede, Codivilla, and others, the result is perfect in about 5 per cent. of cases. Nearly perfect results occur in about 50

per cent. ; and most of the remainder are transpositions with good functional use of the limb.

The method of reduction used in these cases was that of Paci, supplemented by tenotomy of the adductor longus tendon. The dangers of following Lorenz's violent method of procedure were shown by quotations from Lorenz himself, Hoffa, and others.

DR. DE FORREST WILLARD also discussed

CONGENITAL DISLOCATION OF THE HIP

and presented a patient, one of a number awaiting admission to the University Hospital for reduction of congenital dislocation. As the defect was unilateral, the girl did not present the marked lordosis seen in double dislocation. She had, however, great shortening of the limb ; the head and neck lay far up upon the dorsum of the ileum ; and the skiagraph showed the usual distortion and deformity of the femoral head and neck, as well as the deficiency in the lip of the acetabulum.

The speaker said that, so far, his efforts, both before and since Lorenz's visit to this country, had uniformly resulted in the successful reposition of the head of the bone in the site of the acetabulum ; but that his previous efforts had usually been followed only by the reestablishment of the deformity within from one to twelve months after the child had commenced to walk. Whether the case now under treatment would result similarly, the speaker considered still an open question. Since observing the amount of force applied by Lorenz, he had used greater power than previously ; as he thought that his failures during past years might have been due to insufficient disabling of the muscles. He was not, however, convinced that extensive tearing of the muscular fibers adds to the firm retention of the head of the bone in its proper position. In his judgment, permanent retention depended rather upon the original condition of the acetabulum, the head, and the neck. Moreover, he did not believe that it was so wise to tear the adductor muscle from its attachment as it was to divide it with a clean tenotome. The term "bloodless," he thought a misnomer ; as a torn muscle bled more than a cut tendon. The hemorrhage was merely concealed from sight.

The speaker also was not convinced that the transposition of a posterior luxation into an anterior and upper one was an advantage to the child, especially when the limb had been used for eight or ten years, and the muscles and the skeleton had become

accustomed to the position; for the torn muscles would not act so freely as the original ones. In cases, also, that had come here after operation in Europe, said the speaker, locomotion had been restricted and had become painful; and the slight change in maintaining equilibrium had not been sufficient to compensate for the discomfort and injury. Many of the patients that had reached manhood with the femoral heads upon the dorsum, were not only strong, but were even athletic.

DR. WILLARD said that one of the best evidences of the tactile and mechanical skill of Lorenz was the enormous amount of force that he exerted without producing fracture of the limb; in the hands of an inexperienced man, this amount of force would often be injurious. Lorenz had met with a number of serious accidents, and careless surgeons would undoubtedly have many catastrophies. Another thing against which a note of warning ought to be sounded, said the speaker, was a fact that was already being evidenced and would probably lead to many dire results; this was that efforts at reduction, under mistaken diagnosis, would stir up tubercular processes in cases of hip disease that had been partially cured. He had seen a number of these cases, and feared that owing to the present mania many quiescent hips might be roused to suppuration and increased caries.

In old and difficult cases of congenital dislocation, the speaker believed that preliminary extension was advantageous. In spite, however, of the fact that nearly every case had not only a malformed acetabulum, but also a deformed head and neck of the femur, the condition was such a permanent one and our results in the past had been so unsatisfactory, that it seemed justifiable to use powerful efforts to secure the best possible relation of the femur to its socket. A combined procedure, consisting in forcible stretching, section of the adductors, and, in irreducible cases, the laying open of the capsule, would probably, in Dr. Willard's opinion, be the American outcome of the present operation.

The speaker also mentioned thirteen hips now under treatment and in plaster casts, as follows:

Double.—(1) Girl, 3½ years, both femurs reduced without cutting. (2) Girl, 9 years, reduced easily; tenotomies of adductors. (3) Boy, 4 years, reduced.

Single.—(1) Girl, 7 years, reduced, tenotomy of adductors, right. (2) Boy, 2 years, easily reduced, left. (3) Girl, 2 years, easily reduced, left. (4) Girl, 6½ years, reduced, right. (5)

Boy, 3½ years, reduced, left, tenotomy of adductors. (6) Boy, 10½ years, reduced, left. (7) Girl, 9 years, reduced, left.

DR. JAMES K. YOUNG exhibited a patient to illustrate

THE RESULTS OF OPERATION FOR CONGENITAL DISLOCATION

of the hips when the patient is too old to have the forcible reduction operation performed.

The patient was a girl, fourteen years of age, with congenital dislocation of both hips, who had consulted Dr. Young at the Polyclinic Hospital in October, 1902. The spine was greatly lordosed in the lumbar region, the trochanters were two and one-half inches above Nelaton's line, and the head of the femur on each side was dislocated upward and backward on the dorsum of the ileum.

Professor Lorenz, during his visit to this country, examined this girl. On account of her age, he advised a subcutaneous division of the adductor muscles, with manipulation of the hips, fixation in plaster for two weeks, and the subsequent use of a spinal brace. The operation was performed at the Polyclinic Hospital on January 12, 1903, and consisted in a complete subcutaneous division of the adductor muscles, close to the pubes. The limbs were abducted, flexed, and extended; traction was applied, and an attempt was made to place the head of the bone in an anterior position. Three weeks after the operation, a spinal brace which extended well down over the hips was applied. As the result of the operation, the trochanters had descended three-quarters of an inch, and were placed further forward; the lordosis had been greatly diminished; and the height of the patient had been increased about two inches and a half. The awkward, sideways, waddling gait that she had exhibited before the operation had been greatly modified; and the pain from which she suffered had been entirely relieved.

DR. H. AUGUSTUS WILSON, by invitation, opened the discussion. He said that it was a pity that something could not be done to carry into other fields the phenomenal results in diagnosis that the recent visit of Dr. Adolf Lorenz to this country had produced in that of deformities of the hip. Cases that had been considered almost every other condition were brought to light as congenital dislocations. Nearly all had, at some time in their progress, been treated for rheumatism. Of the several hundred pa-

tients with hip deformity seen by Dr. Wilson in connection with the Lorenz Clinic at Jefferson Medical College Hospital in December last, the vast majority were other than congenital dislocations. The worst cases were those that had been pronounced cured by osteopathy. Quite a large number had been correctly diagnosed by the parents of the patients, after reading newspaper descriptions.

The speaker thought that a very grave responsibility rested upon the general practitioner, in correctly diagnosing congenital dislocation very early, before secondary changes had occurred in the bones that form the joint; so that reduction might be accomplished with ease, and permanent function secured. The difficulty in securing reduction was in direct proportion to the age of the child; the results, of course, were in the same ratio. The longer a child walked upon a dislocated hip, the greater the difficulty became; because the parts adjusted themselves to the abnormal conditions, alterations occurred in adaptation, and the disused acetabulum became filled with fibrocartilage. To say that all cases became horribly deformed, and that the patients suffered severe pain and became incapacitated, because a small proportion were so affected, was, in his opinion, an exaggeration. He had seen a large number of adult patients in whom adaptation had been so well accomplished that the shortening was the only apparent disability, and this disability had been overcome by wearing a high-soled shoe. He had just seen, at the Jefferson Hospital, a woman of twenty-five, the mother of several children. She had learned for the first time that her hip was dislocated. Upon careful inquiry, it was learned that one leg had always been short; but the woman had thought that, to a greater or less extent, this was the case with everyone. Dr. Wilson also mentioned the cases of two youths, fifteen and seventeen years of age, respectively. They were athletes, one a foot-ball player, and the other a long-distance bicycle-rider.

Some cases were more seriously affected by a mild disability than others; therefore, it was the duty of the surgeon to fully restore the function in early life, before the hip had been used in walking, if possible. Dr. Wilson believed that there was more than ample evidence in radiography, in the records of operations, and in postmortems, to prove conclusively that before the end of the second year the parts were normally constructed in most cases, and that the dislocation was then of a mild type.

Sometimes there was merely a relaxed joint. All this, as Dr. Lorenz has definitely proved, indicated the period at which the correction should be undertaken.

The speaker thought that Dr. Davis was to be congratulated upon the most excellent results obtained by him in the hips that he reduced bloodlessly; but Dr. Wilson could not agree with Dr. Davis that anterior transposition is an improvement upon the former posterior position, and thought Dr. Davis in error in viewing such results as satisfactory. Dr. Wilson also thought it an error to think that the Lorenz bloodless method required great force, simply because Lorenz skilfully applied such force in severe cases that had been allowed to walk. That this great force could be applied so skilfully by Lorenz, without mortality, often without shock, and without positive injury, as the result of his vast experience, showed his knowledge and dexterity. At the same time Lorenz has practically demonstrated that no great force was required in his reposition of congenital dislocations, when this was done during the first year of the child's life; and he did not himself consider his bloodless method suitable in a child that had been allowed to walk until he was six or seven years of age. Dr. Wilson thought that in such cases the so-called intermediary operation (cutting) would afford the best results, without the mortality or the disagreeable features of Hoffa's operation. He urged that confusion be avoided in referring to the Lorenz bloodless, weight-bearing method, in which there was no preliminary application of extension in bed. The method depended upon the complete reposition and fixation in a position of hyperabduction and flexion, with external rotation. This position was maintained for six months in plaster of paris. Dr. Wilson thought it should be recognized that a man that had performed two or three hundred cutting operations and fifteen hundred bloodless repositions, and had originated and formulated definite procedures, was better able to determine the technique than was any other person. Rational changes in technique, in order to meet the individual conditions of patients, would, of course, be necessary.

DR. JAMES K. YOUNG thought that the battle that had for several years raged between Kirnison and Lorenz would still continue. The speaker thought that the operation as performed by Lorenz required great skill, in addition to great force; and believed that, if proper care were taken in performing this opera-

tion, the number of accidents would be greatly diminished. The list of accidents given in reports would probably deter many from attempting this operation. Up to the present time, Dr. Young had himself performed seven of these operations, and had seen as many more performed. In none of these has there been any difficulty, except in one instance, in which there was a slight interference with the venous circulation, lasting half an hour. Dr. Davis had said that one could not tell the position of the head of the femur until the cast had been removed; but Dr. Young thought that the test given by Lorenz to prove that the head of the femur was in the proper position, a good one, and one that might be considered reliable, until disproved.

The speaker considered age a very important factor, and thought that attempts to reduce congenital dislocations should not be made after the time-limit given by the originator of the improved operation had expired. It occurred to Dr. Young some time ago that some cases of congenital dislocation might be due to birth-injury; this would account for the difference in the reduction and cure of the two groups of cases. He consulted Dr. Barton Cooke Hirst upon the subject, and the latter assured him that it was a very rare accident to have a dislocation of the hip occur at birth. That these accidents were possible, however, was proved by the fact that one occurred to Dr. Phelps in his earlier experience. After the reduction of the dislocation in this instance, the hip remained in its proper position. The possibility of such an occurrence in difficult births had been recognized since the time of Hippocrates, who referred to this subject in his work on articulations.

DR. DAVIS, in concluding the discussion, expressed surprise at the somewhat pessimistic attitude of Drs. Willard and Wilson. He thought that very much was gained by treatment. The disability was often marked, and tended to increase as the patient grew older. The lordosis increased, the buttocks projected in an unsightly manner, the gait was waddling, and long-continued walking or standing, or ascending stairs, was accompanied with discomfort, and often with positively disabling pain. He considered it a serious condition.

He thought that under treatment at least half the cases could be practically cured; and that in nearly all the remainder, the head could be fixed in anterior transposition. This was a dis-

tinct gain, for it prevented the head of the bone from sliding up or down while the patient was walking; it removed the lordosis; it prevented any increase in the deformity or disability; and it enabled the patient to walk with comfort, even if there was slight limping and some shortening. Dr. Davis did not agree with Dr. Willard that transposition was no gain. Dr. Davis's cases were treated by previous extension and the manipulations of Paci, in order to avoid the liability to the injuries so often accompanying the violent procedures of Lorenz. The speaker said that he was familiar with Lorenz's statement that inability to extend the leg was an indication of reposition, but he did not accept this statement. He preferred to remove the cast, in order that he might see that the head had remained in its proper place.

DR. WILLIAM G. SPILLER exhibited 2 cases of

SPASTIC PARALYSIS OF THE LOWER LIMBS

in which correction of the talipes equinovarus had benefited the patients. In each case, the spastic paralysis was the result of imperfection in the pyramidal tracts; in 1 case, of imperfect development; and in the other, of early primary degeneration.

The first case was one of premature birth, and was a typical example of what some of the French writers understand by the term Little's disease. The child was born in the seventh month of intrauterine life, and her lower limbs were very spastic. She had never been able to walk without crutches before the operation, and even then she had walked on her toes. She was intelligent, had never had convulsions, and had perfect use of her upper limbs. The deformity of the feet was corrected about a year ago; and the child was now able to walk very slowly without crutches or assistance, and to put the feet firmly on the ground. Dr. Spiller spoke of the importance of making a distinction between a case of this kind, and one of spastic paralysis resulting from an injury of the brain; as in the former, mentality might be unaffected, epilepsy might be absent, the upper limbs might be normal, and the spasticity might diminish even late in life.

The second case was an example of the family form of spastic spinal paralysis, resulting from early degeneration of the pyramidal tracts. The case had been previously reported, but was exhibited in order to show the improvement in the gait obtained by the correction of the talipes equinovarus.

The operation in one case was done by Dr. J. William White; and in the other, by Dr. De Forrest Willard.

DR. JAMES K. YOUNG exhibited a patient with

SPASTIC PARAPLEGIA IMPROVED BY OPERATION.

The case showed beneficial results obtained by operation when spastic paraplegia was due to cerebral palsy. The patient was a boy, four years old when he was brought to the University Hospital for treatment on June 7, 1897. He was suffering with spastic diplegia. He had had chicken-pox, but none of the other eruptive diseases of childhood. He had not been delivered with instruments, but had been artificially fed. There had been no deformities in any of his ancestors, nor was there tuberculosis in any member of his family. His own general health was fair. The cause of the attack of spastic diplegia could not be accurately determined, but it was probably congenital. Both hips were held at a right angle, and strongly abducted by the contraction of the flexors. Subcutaneous division of all the contracted tendons was performed; the adductors, rectus, sartorius, all the hamstrings, and the tendon of Achilles, were thoroughly divided under anesthesia. The limbs were forcibly flexed, and retained in plaster of paris dressings for three weeks. Massage was given for some months, and a double paralysis brace was applied. The result was the complete reduction of one limb, with a slight contraction of the tendon of Achilles in the other. The arms had completely recovered. The mental condition was apparently perfect, and the child was active and in excellent health.

DR. EDWIN E. GRAHAM reported a case illustrating the

NON-SUSCEPTIBILITY OF THE NEW-BORN TO MEASLES.

Mrs. S. was seen on the morning of February 28th, with coryza, a cough, a temperature of 102.4°F., and the rash of measles covering her face and upper neck. There were also a few isolated spots on her body. The following morning, after a normal labor at the end of the full period of uterogestation, a male infant, presenting absolutely nothing abnormal, was born. At this time, the rash had spread over the entire body of the mother. The baby was free from rash, had a normal temperature, and presented no unusual symptoms. It was at no time isolated from its mother. It was nursed regularly every two hours, and was treated exactly as if it were not exposed to the contagion of

measles. With the exception of a severe laryngitis, the mother made an uninterrupted recovery. When the infant was nine days old, the other child of the family, a boy aged eighteen months, developed a typical attack of measles. At the age of six weeks, the infant had shown no symptoms of the disease.

From the reports of Mayr and Boutillier and of others, it appeared that the susceptibility to the disease was certainly very marked after the age of one year. Thomas reported six instances in which the rash was present at birth; and von Jürgensen reported cases in which, the mothers having contracted the disease just before delivery, the rash appeared on the children a few days after birth. The report of an epidemic by Carr tended to show that six months is the age at which distinct susceptibility to the disease began, and that after the age of one year the liability to contract the disease was very marked.

PERTUSSIS COMPLICATED BY TUBERCULAR MENINGITIS.

DR. GRAHAM also reported the case of a child, aged nineteen months, first seen in consultation with Dr. Gordon, on March 19th. The family tendency to tuberculosis was not marked. The patient had always been healthy until the development of pertussis, two months previously. She had had one convulsion when eight days old, probably from improper feeding. She had walked at fifteen months; and before the attack of pertussis she could speak a few words and understand language perfectly. Three weeks before being seen, she had become dull, heavy, and apathetic; but she took nourishment well and did not cry. The stupor gradually increased. At this time, the pulse averaged 65 to 75, and the temperature was usually normal or subnormal. There was occasional vomiting, and nourishment was taken fairly well from a spoon. During the five days preceding Dr. Graham's visit, the stupor gradually became more marked. The arms and legs were moved slightly. Cheyne-Stokes respiration had been present since the increase in the stupor. The temperature was 101.6° F.; respiration, 28; pulse, 150. Sensation was evidently better preserved on the left than on the right side. Sensation to heat and cold was well preserved. The attacks of coughing were now rare and very light. The pupils were dilated and responded sluggishly to light; both eyes were occasionally sluggishly opened. There was no facial palsy and no spastic condition.

During the five days following, until her death, on March 25th,

the temperature ranged from normal to $105\frac{4}{5}^{\circ}\text{F}$. Respiration continued of Cheyne-Stokes type, varying from 30 to 80. The pulse ranged from 130 to 180. The child was fed every four hours, by means of a tube, with four ounces of peptonized milk. The stupor gradually became more marked; and a progressively increasing spastic condition appeared, involving both arms and legs. The eye-examination showed the media to be clear. The optic discs were clearly outlined, and there was no evidence of pressure. The urine was normal. Lumbar puncture showed the fluid to be highly albuminous. After centrifugation, the sediment consisted of erythrocytes and leukocytes. The differential count showed lymphocytes 91 per cent., and polymorphonuclear leukocytes 9 per cent. Spreads stained for bacteria gave negative results. Cultures remained sterile. The autopsy showed tubercular meningitis at the base of the brain.

A Case of Xipophagus Twins.—In the *New York Medical Journal*, May 2, 1903, E. B. Bailey, contract surgeon U. S. A., reports this case. The parents were peons (laborers), the mother a robust, well-built woman, thirty years of age and a multipara, but giving no history of having previously had twins. The father was a medium-sized man about thirty-five years of age.

Pregnancy took place at an elevation of 8,000 feet and in a rather mountainous country. The birth of these twins, connected by a sternal band, occurred at Ramos, State of San Luis Potosi, Mexico, in November, 1901, on the dirt floor of a dark, dirty, ill-ventilated adobe hut, and, as is customary with that class of people, was attended by a midwife, with numerous spectators in the room. Often as many as fifteen or twenty men, women and children are present at labor cases. A physician is seldom called in unless the case is urgent. Dr. Bailey did not see this case until ten hours after the birth of the head of the first child, which was then dead, evidently from pressure on the umbilical cord; the second child, when it was born was also dead. The first presentation was cranial, and the second converted to a podalic. Each child was well formed and of average size (both were females), and there was only one cord and one placenta. The connecting band, which was fleshy and cartilaginous, was three inches long and one inch broad, and situated in both of them at the centre of the sternum.

THE NEW YORK ACADEMY OF MEDICINE.—
SECTION ON PEDIATRICS.

Stated Meeting May 14, 1903.

HENRY HEIMAN, M.D., CHAIRMAN.

THE CHAIRMAN presented a

MONGOLIAN IDIOT OF TEN MONTHS

—a cretinoid. The posterior fontanel was still open. The eyes were almond-shaped and lateral nystagmus was present. The liver was enlarged. The child's weight was ten pounds ten ounces. The skull was brachiocephalic. There was lateral displacement of the digits. The child did not notice things as readily as a normal infant of the same age. Thyroid treatment had been tried, but so far with apparently negative result.

DR. J. G. WILLIAM GREEFF read a paper on

PYLORIC STENOSIS IN INFANTS.

He said that this was a rare disease, and although it was generally thought to be congenital, he had been able to find 30 cases in which it was apparently an acquired condition. Vomiting was the most constant symptom, the symptomatology closely resembling that of chronic gastric catarrh. It was possible that tuberculosis and syphilis had something to do with its causation, and that there might exist a family tendency. The speaker reviewed the literature, and then reported a case. The subject was a boy of about six months, born after a normal labor. He had first seen the infant when it was twenty-three days old. At that time there was almost constant vomiting and the baby was poorly nourished. The stomach extended three fingers' breadth below the umbilicus. A calomel purge was given, and the stomach and bowel were washed out. The stomach washings were very sour but contained no free hydrochloric acid. The temperature, which was 102°F., was reduced by the irrigations. The child weighed eight and one-half pounds at birth, but began to lose weight after the first two weeks. The diagnosis of pyloric stenosis was made, and Dr. Holt concurred in this diagnosis and advised operation. Dr. Bull did a gastroenterostomy, but the child died. The stomach

was found to be 12 cm. long by 7.5 cm. between the two curvatures. The stomach wall was hypertrophied, as was also the mucous membrane around the pylorus. The speaker said that all of the reported cases were likewise characterized by an absence of free hydrochloric acid. If a palliative treatment was of no avail after a week or ten days an operation was imperative, and pyloroplasty apparently yielded better results than gastroenterostomy. The treatment consisted in stopping all food by mouth for two or three days, and giving antifermentatives. If this condition had been congenital the child would not have done well for the first two weeks.

DR. A. ERNEST GALLANT exhibited a child's stomach which exhibited the same lesions, and had been taken from a case having a similar history. That child would go to sleep when the stomach had been well emptied. When about five weeks old it was operated on, and this disclosed a contraction at the caput coli, a marked thickening at the pylorus and a hypertrophy and puckering of the mucous membrane of the stomach. The infant survived the operation only six hours. He thought it probable that the pyloric stenosis had begun during intrauterine life.

DR. SARA WELT-KAKELS remarked that it was a simple operation to cut through the sphincter longitudinally, and remove the reduplication of the gastric mucous membrane.

DR. GREEFF, in closing the discussion, expressed the opinion that a number of these cases could be cured without operation.

DR. HENRY W. BERG read a paper

ON CHRONIC POST-DIPHTHERITIC LARYNGEAL STENOSIS AS A CAUSE
OF PERSISTENT INTUBATION OF THE LARYNX.

He said that he had observed 14 cases at the Willard Parker Hospital, of which 38 per cent. had recovered. The length of time the tube was left in varied from three to eighteen months, though 1 case had worn a tube for two years and a half. Stenosis of the larynx due to inflammatory swelling of the mucous membrane yielded the most readily to intubation. Pressure on the mucous membrane meant pressure on the cartilage, with resulting pressure sores or what the Germans called "decubitus." The longer the sojourn of the tube in the larynx the greater the liability to decubitus. It was not possible to diagnosticate decubitus, for it gave rise to no symptoms before the occurrence of stricture or

abscess. Traumatism of the larynx was often caused by a long shoulder on the extractor which, by striking the roof of the mouth, tilted the end of the intubation tube against the posterior wall of the larynx. The laryngeal spasm associated with stenosis of the larynx was best treated by hypodermic injections of $\frac{1}{16}$ of a grain of morphin. The prognosis where there was no decubitus was good. Out of his 14 cases, 5 died, 6 had been cured, 2 were still under treatment and 1 case still had the tube in the larynx.

DR. JOHN ROGERS said that he had treated 15 cases of chronic intubation. He had tried laryngotomy and had discarded it. Perseverance was necessary to the successful treatment of these cases, yet he believed they were all curable. He recommended in cases of autoextubation the immediate performance of tracheotomy, followed after two or three weeks by the introduction of a tube.

DR. STANTON said that he had treated a number of these cases, all successfully, but the longest time the tube had been worn was three months.

DR. A. A. BERG said that cicatricial stenosis of the larynx should be treated by dilatation except when this tissue was very firm, in which case the tissue must be excised and its place filled by mucous membrane or skin.

DR. BERG, in closing, said that he would not think of doing tracheotomy in cases of autoextubation except as a last resort, and he was surprised at Dr. Rogers' recommending this procedure.

VULVOVAGINITIS IN LITTLE GIRLS; A CLINICAL STUDY OF 190 CASES.

DR. SARA WELT-KAKELS was the author of this paper. The cases had been collected from the children's clinic of the Mount Sinai Hospital, where she had treated 11,000 cases. Of this number, 1.6 per cent. were gonorrheal. Most of the patients were between two and ten years of age. It was found that the vagina was always inflamed and the inguinal glands enlarged and tender, but in no instance had suppuration of these glands been observed. She believed that most of these cases arose from indirect infection, *e.g.*, sleeping with a mother having "a discharge," or by handling soiled linen. The incubation period of gonorrhea in these children was estimated to be only three or four days. All cases presenting a vaginal discharge should have cultures made

and examined by Gram's method, yet it should be remembered that a negative result did not exclude gonorrhea. One case of mild gonorrheal ophthalmia had been seen, and had been cured. One case of gonorrheal peritonitis had been observed, in which operation had been done, but without averting the fatal issue. In this case, cultures from the peritoneal exudate showed gonococci. The treatment should consist in cleansing the part with a 1 to 2,000 solution of potassium permanganate or in the use of irrigations with silver nitrate solution, the strength of the same varying from 1 to 2,000 to 1 to 500. New-born infants, whose mothers had gonorrhea, should be treated prophylactically by vaginal irrigations with nitrate of silver solution.

DR. H. W. BERG said that at one time a number of the children in the scarlet fever ward of the hospital had developed vaginitis, but as no gonococci were found in the discharge it was assumed that these cases were examples of scarlatinal vaginitis. A little later, however, a number of cases of ophthalmia developed in this ward, necessitating the isolation of those affected.

DR. A. ERNEST GALLANT was of the opinion that masturbation was an important factor in the causation of vaginitis in children.

Xeroform in Pediatrics.—Xeroform, chemically tribromphenol bismuth, has been extensively used as a wound dressing, and also internally, to a limited extent. It is not only a good astringent, but also a powerful intestinal antiseptic, being split in the intestinal canal into tribromphenol and bismuth oxide. E. Toff (*Centralbl. für Kinderheilk.*, March, 1903) has used it for seven years in the treatment of acute and chronic diarrheas in children, with very satisfactory results. It is tasteless and odorless, and the author has never observed toxic symptoms from its use. To the antiseptic and astringent action of the drug is to be added the analgesic effect of the bromin, which makes the administration of opiates unnecessary. It may be used in doses of 0.5 to 1.0 gm. (grs. 7½ to 15) daily, for children under two years, and 2.0 gms. (grs. 30) daily for older children. The author has used it in diarrheas, gastritis, abnormal fermentations, dysentery, and typhoid fever. He has also found it very useful externally, as a dusting powder for wounds, intertrigo, moist eczema, burns, suppurative otitis media, and scrofulous affections of the eye.—*American Medicine*.

Current Literature.

PATHOLOGY.

D'Orlandi, Pietro: A Contribution to the Study of Cyto-diagnosis in Some Diseases of Children. (*Pediatrics*, January, 1903, p. 8.)

The author obtained an unusual opportunity for the study of the cerebrospinal fluid in various diseases of children during the year 1901-1902, in the course of which he performed lumbar puncture in 100 cases. The cytological examination of these specimens and the study of the literature of the question, led him to the following conclusions as to the value and significance of cytodiagnosis in diseases of children:—

The cerebrospinal liquid of children affected with various diseases almost always shows the presence of a variety of morphological elements of the blood, especially of the small and large mononuclear lymphocytes, of polynuclear leukocytes, of endothelial cells, etc. In tuberculous meningitis there is almost always (10 positive cases against 1 negative) the presence of uninuclear forms (lymphocytes and mononuclear leukocytes) in predominating numbers over the polynuclears, and a small proportion of red cells. This is found during the entire course of the disease, and the same results are obtained in specimens in cases of diffuse cerebral tuberculosis. In cerebrospinal meningitis due to the pneumococcus and characterized by an acute course, and in the presence of isolated tubercles in the cerebellum, the cytological formula of the cerebrospinal fluid has no characteristic type. In general pulmonary tuberculosis with symptoms of meningeal irritation, and in typhoid fever with the same symptoms there is a predominance of the polynuclear cells. In the various forms of chorea, tetany, cerebral infantile diplegia (with the exception of 1 case in which the result was uncertain), in hydrocephalus, in rickets, in pulmonary tuberculosis, exudative pleurisy, pleuropneumonia, bronchopneumonia, and nephritis, in typhoid fever with symptoms of meningitis, the results of the examination were negative. In the exudate of pleurisy (serofibrinous) in children, in which the course was acute, the polynuclear forms pre-

dominated, and at times there were endothelial cells, irrespectively of the stage of the disease. In chronic pleurisy with effusion in children the exudate showed constantly a predominance of the uninuclear forms (almost exclusively small and medium-sized lymphocytes) and invariably the presence of endothelial cells. In the fluid of chronic peritonitis in children (tuberculous) the unicellular types predominated (exclusively small, and medium-sized lymphocytes).

Berghinz, Guido: A Case of Cerebrospinal Meningitis due to the Intracellular Meningococcus. (*Rivista di Clin. Pedat.*, January, 1903, p. 38.)

This disease is uncommon in Italy, and in the region of Rome has not been met with epidemically. The author reports a case in which the meningococcus intracellularis was found. In a recent article Xavier Lewkovitz (*Jahrb. f. Kinderheilk.*, Vol. lv., No. 3, 1902) pointed out that there are two types of this meningococcus—the type of Weichselbaum and the type of Jaeger-Huebner. These types present a series of bacteriological differences. Thus the Weichselbaum type as decolorized by Gram, does not grow on the ordinary media, and is not pathogenic on injection in animals, while the Jaeger-Huebner type stains with Gram, grows on the ordinary culture media, such as broth, gelatin, milk, and potato, and produces a septicemia in rats, rabbits and guinea-pigs. Concetti and his assistant Longo have shown, however, that these apparently different types are but variations of the same organism which may be found in the same patient under varying conditions of bacterial life. Sorgente, in another study, confirmed this opinion, and says that the two types belong to the same microorganism. The interesting feature about the case reported in the present article is that the germ found in this instance exhibited some of the characteristics of the Weichselbaum type and some of the peculiarities of the Jaeger-Huebner type. This seems to confirm the idea that there is a single germ concerned in the production of cerebrospinal meningitis, but that it may assume different biological characters according to the conditions of growth.

Hektoen, L.: Bacteriologic Examination of the Blood in Scarlet Fever, with Special Reference to Streptococcemia. (*Journal American Medical Association*, March 14, 1903, p. 685.)

From blood cultures from 100 cases of scarlet fever Hektoen

isolated streptococci in 12. The writer's view of his results is embodied in the following paragraph:—

The conclusions that suggest themselves from this work so far as scarlatinal streptococcemia is concerned are that streptococci occasionally may be found in the blood of cases of scarlet fever that run a short, mild, and uncomplicated clinical course; that streptococci occur with relatively greater frequency in the more severe and protracted cases of scarlet fever in which there also may develop local complications and clinical signs of general infection, such as joint inflammations, but even in the grave cases of this kind spontaneous recovery may take place; and finally, that streptococcemia may not be demonstrable in fatal cases of scarlet fever. The theory that scarlet fever is a streptococcus disease does not seem to receive any direct support from this work.

Shalek, A.: Theories of the Transmission of Hereditary Syphilis. (*Journal American Medical Association*, May 16, 1903, p. 1,349.)

Discussing the question of the relative influence of the father and mother in the transmission of hereditary syphilis, the writer formulates the following conclusions:—

(1) The father's sperm cell may contain the syphilitic virus and convey it to the child without participation of the mother. (2) The maternal generative cell may contain the virus and result directly in a diseased fetus. (3) The placental circulation permits the passage of the infectious matter either way from mother to child, and *vice versa*. (4) Several or all of these factors may combine, and the more of them that are present the less probable the escape of the child. (5) The probabilities of the transmission of syphilis through the mother are greater because of more ways of possible influence on the fetus.

Liachowsky, E. M.: The Changes of the Prostate Gland in Children. (*Dissertation*, St. Petersburg, 1903.)

The author's work was undertaken with a view of reconciling the existing differences of opinion in regard to the successive changes undergone by the prostate gland in childhood. The results of his investigations are summarized in the following propositions: (1) The growth and the differentiation of tissues do not go hand in hand in the developing gland. (2) During the first

years of life the development of glandular elements is in advance of growth. (3) At the age of twelve years the prostate gland has assumed most of its adult characteristics. (4) In childhood the prostate grows very slowly. (5) Rapid increase in size and weight takes place in the gland at the age of puberty. (6) The unstriped muscles are the first to develop in the prostate. (7) Concretions are met with in the prostate gland of children. (8) In the fetus and up to two years the gland shows the tubular structure and later assumes the alveolar type gradually. (9) The vascular system of the prostate reaches its complete development toward puberty. (10) As the prostate gland grows, the prostatic urethra is lengthened.

MEDICINE.

Durante, Durando: Clinical Forms of Infantile Tetany Tremor. (*Pediatrics*. December, 1902, p. 609.)

The author deplors that not only the treatises on pediatrics, but also the special works on nervous diseases do not devote much space to the consideration of infantile tremors. The question as to the origin of the various clinical forms of these tremors is by no means settled. He reports 4 cases, in 1 of which there could be no doubt, from the clinical symptoms, that tetany was present. In the other 3 the nature of the tremor and the presence of Trousseau's sign pointed to the probability of tetany. In all these cases there were evidences of intestinal autointoxication and of most deficient hygiene, and the author is inclined to refer the occurrence of such instances of infantile tremor to these causes. The article is noteworthy for the detailed consideration of the various opinions held on the subject of tetany, and for the credit the author gives to various American observers, including Rotch, Emmet Holt, Crozer Griffith, Osler, etc.

Forster, F. C.: Case of Rheumatic Fever Complicated by Chorea, Iritis and Endocarditis; Recovery. (*British Medical Journal*. March 7, 1903, p. 543.)

The patient, a girl of twelve and one-half years of age, was taken with a sore throat after exposure in a heavy shower. The next morning a typical attack of acute articular rheumatism was

manifest, involving the right knee and elbow, and left ankle. Temperature 101° F., pulse 120. The attack had quite subsided at the end of a fortnight. Three days later choreiform movements developed involving the muscles of the face and upper extremities. These continued for four weeks, and, while subsiding, an attack of acute iritis of the right eye developed presumably "rheumatic" in origin. Shortly after the onset of the iritis a cardiac lesion appeared which developed into a grating systolic bruit, with dilatation, cyanosis and edema. Improvement set in and when seen some months later she was taking long walks and cycle rides without dyspnea.

Weber, F. P.: A Case of the Form of Chronic Joint Disease in Children Described by Still. (*British Medical Journal*. March 28, 1902, p. 730.)

The patient was shown as a typical example of the articular affection described by Still at the Medical Society in 1902. He had had a definite attack of endocarditis affecting the mitral valve. The knee joints and elbows were affected, but the striking features were symmetrical swellings of the articulations of the hands and feet, stiffness of the cervical spine, and marked enlargement of the liver and spleen. Despite an intercurrent typhoid fever the boy had improved greatly. His joints were almost normal, he moved his head freely, the liver and spleen were much smaller, the superficial lymph nodes could not be felt, and he had gained in health and strength. The heart was still somewhat enlarged and there was a soft systolic apical murmur. The case seemed to indicate the possibility of recovery from the affection in question.

Bromwell, J. R.: Leukemia in Childhood. (*The American Journal of Obstetrics*. December, 1902, p. 8c8.)

The patient, a boy fourteen years old, had had malaria and gripe. The leukemic condition developed very rapidly. On examination of the blood showed 4,440,000 red cells, 85,000 white cells. Two weeks later the red cells numbered 4,041,000, macrocytes, microcytes, and normoblasts; the white cells were 529,000. The relative proportions were: small mononuclears 10, large mononuclears 85, polynuclears 4.8, eosinophiles 0.2; no myelocytes. The striking features of the case were the enlargement of the spleen, a very irregular fever, persistent bleeding from the gums, tongue, and nose. The case terminated with a cerebral hemorrhage.

Gordon, A.: Amyotrophic Lateral Sclerosis in a Boy of Fifteen Years with a History of Acute Anterior Poliomyelitis in Infancy. (*American Medicine.* April 4, 1903, p. 534.)

The patient had a typical attack of infantile paralysis at the age of one year. The disease remained typical until the age of eight, when he had a series of infectious diseases, and two fractures occurred in one of the affected limbs. These two circumstances probably gave an impetus to the old diseased focus, with the result that the pathologic process spread considerably and involved the pyramidal tracts. When seen at the age of fifteen years, the boy presented evidences of an amyotrophic lateral sclerosis of the scapulo-humeral type. The atrophied muscles presented a fibrillary tremor and increased mechanical irritability. The reflexes were, for the most part, exaggerated.

Thomson, John: On the Lip Reflex of Newborn Children. (*Review of Neurology and Psychiatry.* March, 1903.)

The reflex in question has received but little attention; Loos and Escherich mention it briefly. The reflex is best elicited by a series of gentle taps on the upper lip just above the angle of the mouth, or on the under lip a little below it. It can, however, be got anywhere on the lips in a well-marked case, and sometimes over a considerable part of the cheek. On tapping the lip there is often, first of all, a slight momentary jerk. This is generally toward the side tapped but sometimes toward the other side. Almost at the same time the lips close, if they were parted, and become deliberately pursed together so as to pout a little.

This reflex occurs in healthy newborn babies when they are sound asleep, and in a considerable portion of them when sleeping lightly, but is very rare when the infant is awake. As the children grow older, the reflex is less often found. Until the end of the third or fourth year it is fairly common.

Smith, R. Travers: Experiences in an Epidemic of Cerebro-Spinal Meningitis. (*The Practitioner.* March, 1903, p. 338.)

Forty cases of cerebrospinal meningitis were treated in the Hardwicke Fever Hospital, Dublin, during an epidemic in 1900. Four of the cases were considered doubtful and excluded from consideration. Most of the remaining thirty-six patients were between five and twenty years of age. Six were over twenty,

three were under five. Females were attacked more frequently than males, in the proportion of two to one. The onset was regularly abrupt and severe. The course of the disease was so irregular as to render it impossible to sketch a typical case. The fever was notable for its irregularity in height and its varying duration. Headache was never absent, in the majority it constituted the most prominent symptom. The situation of the pain was more often frontal, than occipital. Kernig's sign was present without exception. Ophthalmoscopic examinations furnished surprisingly negative results. Herpes and erythema were common early in the disease. Of the 36 cases 14 died, a mortality of 38 per cent. Bacteriological examinations of inflammatory exudations found postmortem showed the diplococcus intracellularis in every case save one.

Pearson, S. V.: The Differential Diagnosis Between Croupous and Catarrhal Pneumonia in Children. (*The Practitioner.* April, 1903, p. 490.)

The writer opposes Samuel West's recently expressed opinion that primary catarrhal and croupous pneumonia in children are one and the same. The anatomical differences are fully developed. Etiologically, also, there are differences. Croupous pneumonia is a primary disease and the diplococcus of Weichselbaum is present in 90 per cent. of the cases. Bronchopneumonia is frequently secondary and is associated with a variety of organisms other than the pneumococcus. Clinically, there are several points of distinction. The facies in croupous pneumonia is that of surprise; there is not the look of keen distress seen in bronchopneumonia. The dyspnea in bronchopneumonia is inspiratory, obstructive, and often accompanied with recession of the chest wall.

The dyspnea in lobar pneumonia is usually greater, but is not obstructive, and recession is rarely seen. Cyanosis is more marked in bronchopneumonia. In lobar pneumonia cyanosis is accompanied with well-marked and extensive signs of consolidation. Cough is much more distressing in bronchopneumonia. The differences in the course of the disease are pointed out clearly. In lobar pneumonia the physical signs are usually definite and extensive. In bronchopneumonia there may be no signs of consolidation, and if they occur they are usually less definite and extensive. Well-marked apical consolidation is almost always lobar pneumonia. Bronchitic adventitious sounds are usually

present in bronchopneumonia, and inconspicuous or absent in lobar pneumonia. Croupous pneumonia is less serious in infants than in adults. Bronchopneumonia shows much the higher death rate among children. Bronchopneumonia secondary to diphtheria, acute iliocolitis or scarlet fever is practically always fatal.

Griffith, T. W.: A Case of Almost Complete Absence of the Auricular Septum and other Cardiac Malformations Complicated by Acquired Mitral Disease. (*The Medical Chronicle*. March, 1903, p. 385)

A girl of thirteen years presented symptoms of cardiac failure. One child of the parents had had spina bifida, another had been blue during its life of seven months. The girl had never shown cyanosis until she was nine or ten years old; then only after exertion. She was admitted to hospital, but failed steadily and died of cardiac failure without dropsy. The heart was found to be immensely enlarged, weighing thirteen and three-fourth ounces. The dilatation and hypertrophy were most marked on the right. There were evidences of recent endocarditis of both mitral and tricuspid valves and almost complete absence of the auricular septum.

The comparative absence of cyanosis is explained on the basis of the absence of obstruction in the pulmonary artery or elsewhere, such obstruction being at least usually the explanation of cyanosis in cases of congenital heart disease.

Sutherland, G. A. and Walker, J. W. T.: Two Cases of Interstitial Nephritis in Congenital Syphilis. (*The British Medical Journal*. April 25, 1903, p. 959.)

Two cases are reported as examples of a form of nephritis which has hitherto received but little attention. The patients were females, aged sixteen months and eight months respectively. Both during life presented evidences of congenital syphilis. At autopsy similar changes were found in the kidneys in the 2 cases. The kidneys were enlarged, the capsules stripped easily, and exposed a surface stippled with yellow dots and a few pea-sized yellow areas. On section the cortex was found of a brilliant pinkish-yellow color with here and there small wedge-shaped or irregular areas of normal kidney tissue. The pyramids were dark reddish brown, contrasting strongly with the color of the

cortex. On microscopic examination the interstitial tissue of the cortex was densely infiltrated with round cells. Here and there the infiltration was so dense as to obscure the tubules and glomeruli, while in other places, mostly subcapsular, it was absent. The tubules were separated by a similar infiltration and contained casts.

SURGERY.

Beck, Carl: Fracture of the External Condyle of the Humerus in Children. (*Medical Examiner and Practitioner.* March, 1903, p. 157)

The author emphasizes the light thrown by the x-ray upon injuries about the elbow joint in children. During the age of development skiagraphic pictures may easily be misinterpreted because the bones are not yet fully ossified. Thus in very young children the eminentia capitali appears as though entirely severed from the humerus, the epiphyseal tissues not being sufficiently osseous to cast a shadow. It would be very desirable that a commission of surgeons should classify these complicated conditions of epiphyseal ossification during the various periods of development, in order to obtain authoritative rules for text books. Several illustrative cases are reported.

Montgomery, W. P.: Some Remarks on the Results of Tendon-Transplantation in Twenty-Five Cases of Infantile Paralysis of the Lower Extremity. (*The Medical Chronicle.* November, 1902, p. 97.)

The writer's conclusions are, as follows:—(1) The progress of cases in which the gastrocnemius and soleus were adapted as dorsi-flexors of the ankle was very slow. Still there is no doubt that the work of education goes on surely and the cases improve steadily. It is here that the graft tendon acts also as a mechanical support to the foot and ankle in the way Eve has pointed out. In cases in which the acting and paralyzed muscles were more nearly allied in their action the improvement was much more rapid and the earlier results apparently much more satisfactory.

(2) The greater the length of the tendon of a paralyzed muscle to which the acting muscle was applied, the less satisfactory

the early result and the slower the improvement. There is no doubt that this factor of the stretching of the paralyzed tendon or its muscle is a most important one.

(3) The results of the passive method, division of the paralyzed tendon and its suture to the intact acting one, were much inferior to those of the active method in which a slip was taken from the normal tendon.

(4) There is no doubt that at the time of the transplantation all deformity must be corrected. In 4 cases this required the excision of more or less of the astragalus, and they all did well. In several others tenotomy or tendon-lengthening or shortening was performed. This lengthening or shortening gives a much better result than simple tenotomy alone, and this is especially true in the case of the Achilles tendon in instances of equinus and equino-varus.

(5) As regards after-treatment the ideal method is to begin massage and passive movement after three weeks and gentle active movements after four.

Power, D'Arcy: Case of Ileocolic Intussusception Spontaneously Cured. (*The British Medical Journal.* April 25, 1903, p. 964.)

A male infant, aged six months, with the history and all the signs of an acute intussusception except that no tumor was felt and there was no resistance in the right iliac fossa was operated upon. No intussusception was found but about three inches of the small intestine were deeply congested and covered with flakes of lymph. At one spot in this area the intestine was constricted, appearing as if it had been nipped there and the peritoneum was abraded. The case is regarded as a spontaneous reduction of an acute intussusception. A second similar case is taken from a report of G. G. Turner in the *Northumberland and Durham Medical Journal*, 1903. In this instance a sausage shaped tumor, which hardened and relaxed, was plainly felt in the right iliac fossa.

Dobson, J. F.: Invagination of Meckel's Diverticulum. (*The Lancet.* April 25, 1903, p. 1,161.)

A boy, four and a half years old, was seized with symptoms of acute intussusception. A soft, movable, tender swelling was detected in the right iliac region extending upwards to the right costal margin. Upon operation the tumor was found to be an ileo-

colic intussusception. This was easily reduced, until the apex was reached. A pedunculated swelling, evidently an inverted Meckel's diverticulum, was found projecting into the intestine. The intestine was in such condition as to prevent the reduction of this inversion and a resection was therefore done. Some peritonitis developed, but the child eventually recovered. The mechanism of the production of intussusception in these cases is probably as follows: some irritant body enters the lumen of the diverticulum and gives rise to spasmodic contraction of its muscular walls. In the efforts to expel the irritant the apex of the diverticulum becomes caught in the circular muscles of the intestine and is drawn into the lumen of the gut; invagination of the rest of the diverticulum then follows.

Watson, W. T.: Retained Intubation Tubes. (*Maryland Medical Journal*. May, 1903, p. 179.)

Three cases are recorded in which the condition was ultimately cured by repeated intubation. One child, a boy aged one year, required thirty-four intubations during thirty-eight days, before he was able to do without a tube. Another case, a boy of three years, wore the tubes for eighty-three days. The writer is inclined to adopt the view of Rogers, that the underlying condition in these cases is the chronically inflamed and hypertrophic condition of the subglottic tissues, which is a sequel of the original diphtheritic inflammation, and not in any way a result of the operation.

Haldane, P. S.: A Case of Intussusception of the Vermiform Appendix. (*Scottish Medical and Surgical Journal*. April, 1903, p. 333.)

A child, of three years, was admitted to hospital with an oblong cystic swelling in the left hypochondrium extending down to the umbilicus; no symptoms. An enema evacuated a large amount of feces and the tumor disappeared. On the following day a similar tumor, but much smaller, was found at the hepatic flexure of the colon. In the evening the child developed symptoms of peritonitis and the tumor was found about the umbilicus.

Upon operation signs of peritonitis were found over the lower portion of the ileum, the cecum was obviously distended and its coats thickened and there was an inversion of the appendix into

the gut. The patient is believed to have had a chronic ileocolic intussusception which was reduced by the enema. The peritonitis followed the reduction, the peritoneal coats of the ileum being infected with the bacillus coli communis. The invagination of the appendix either occurred at the same time as the intussusception or was secondary thereto.

HYGIENE AND THERAPEUTICS.

Perrin, Maurice: Sudden Death of Nine Sons of an Alcoholic. (*Annal. de Med. et Chir. Inf.*, April 1, 1903, p. 217.)

The following report was made by the mother of the nine boys. The father died suddenly of heart trouble at the age of fifty, he having never been ill until recent years. For many years, he had eaten very little, but drank continually, being always in an intoxicated condition. The mother was in good health, but fearful of her husband's brutality. She had 11 children, 2 girls living and well, and 9 boys who died suddenly at the respective ages of, 3, 6, 4, 9, 8, 7, 7, 5 and 4 years. The one who died at 9 years had been dumb and blind since birth. Three died after the father, the rest before. The mother relates with great emphasis, the manner in which the boys were attacked. After a few days of insignificant indisposition, accompanied in the cases of some, by slight urinary disturbances, the children suddenly relapsed into a profound somnolent condition, the eyes rolled up and death followed within an hour after the onset of the coma. No physician ever arrived in time to witness the attack.

The only observation of value is, that, whatsoever the affection, family and hereditary tendencies must have played a very considerable part.

Cases of this sort are excessively rare, only one is cited (*Archives de Med. des Enfants*, p. 467) which bears any similarity.

Tuixans, Joaquin: Epicarin in the Treatment of Skin Diseases in Children. (*Medicina de los Niños*, February, 1903, p. 42.)

After Kaposi had introduced naphthol into dermatology, it was employed by most clinicians of Spain and other countries. Naphthol, employed in alcoholic solution or in the form of an

ointment, may provoke symptoms of poisoning by virtue of its absorbability. For this reason it should never be prescribed in sufficiently large quantities to produce systemic symptoms.

Epicarin has the advantage of being harmless and non-toxic, and according to Dresser it possesses the same curative properties as naphthol. Besides epicarin is more soluble and is devoid of irritating properties. Epicarin is a product of condensation of creosotinic acid and naphthol, and is capable of forming easily soluble salts, in contrast to naphthol which is only capable of forming alkaline caustic phenates, this property explaining its toxicity.

It has been employed in the Children's Hospital, of Barcelona, by Dr. Botifoll, who confirmed its efficacy and its superiority to naphthol in regard to non-toxicity. No disagreeable effects were noted in the use of an ointment of epicarin repeated even twelve times in the same child, Botifoll used it in 2 cases of prurigo, and the patients were relieved even after the first applications. The papular eruption disappeared and the skin assumed its normal color. The treatment lasted from twelve to fourteen days.

Zia, H. : On a School Epidemic of Conjunctivitis. (*Muen. Med. Woch.* 1903, No. 7.)

A peculiar "epidemic" of conjunctivitis is described which broke out in a private school for girls. The contagion came from one of the pupils who was under treatment for an eczematous corneal affection. In rapid succession neighbor after neighbor of this girl presented themselves with complaints of burning and watering eyes, inability to do sewing, etc. Examination revealed a harmless follicular enlargement in eight-tenths of all patients, while a small number had a simple folliculitis. The contagion was plainly psychical and strict regulations were instituted accordingly, whereupon not a single patient made any further complaint.

Jacobson, Grégoire : On the Feeding of Healthy and Dyspeptic Nurslings with Buttermilk. (*Arch. de Méd. des Enf.* February, 1903, p. 65.)

The following conclusions are drawn from an exhaustive and very careful study of the above subject. The use of buttermilk is indicated :—

I. In healthy infants, where for any reason breast-milk cannot be obtained.

- II. In infants the subjects of—
 - (a) Severe indigestion, congenital or acquired.
 - (b) Acute or chronic gastroenteritis.
 - (c) Debilitated conditions due to some hereditary taint.
- III. It is a food of high rank easily digestible and assimilable.
- IV. Its digestibility is favored (a) by its acidity; (b) by the absence of fat; (c) by the presence of very fine particles of already coagulated casein.
- V. Its market price is low, and therefore it can be purchased inexpensively, in a perfectly clean condition, from an irreproachable dairy.

Jackson, G. T.: The Treatment of Ringworm. (*Medical Record.* April 11, 1903, p. 575.)

The intractability of ringworm of the scalp or beard is well-known. Jackson finds goose grease with a dram or more of the crystals of iodine added to the ounce of grease a most effective remedy for this affection. This application is to be made twice a day until it produces some swelling of the patch, thereafter once a day. In two or three weeks the hair falls out and the patch becomes bald. After a time the hair grows in again and the patch is well. The first applications produce a little pain, but after that even little children do not complain of it. No epilation is necessary. In obstinate cases an ointment composed of from half a dram to a dram of croton oil to the ounce of sulphur ointment may be used with advantage.

Dembo, G. T.: Vaccinal Erysipelas (*Dissertation, Petersburg, 1902.*)

From a thorough study of the subject the author has drawn the following conclusions: There is at present no evidence to the effect that erysipelas can be produced by vaccination, provided the latter is performed according to the rules of asepsis. Erysipelas may of course appear at the site of vaccination as a result of infection. Hence an aseptic dressing is advisable as a prophylactic measure. In infants erysipelas is characterized by its rapid extension and frequent complications, as well as by the high mortality, reaching 50 per cent. It is a scourge of orphan asylums and similar institutions, and may be held in check only by rigidly conforming to modern aseptic requirements. The term "vaccinal erysipelas" should be abandoned as misleading.

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INFECTIONS OF THE NEWBORN.*

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We shall limit ourselves in this report to a brief statement concerning infections of the newborn based mainly on our own observations. We do not aim at a definite classification of these conditions; it is rather our desire to condemn certain attempts at classification that have been made. For instance, we do not incline to accept as pathological entities such conditions as melena neonatorum, hemorrhagic disease of the newborn, Buhl's disease, Winckel's disease, hemophilia of the newborn, etc. According to our observations and in accordance with the findings in the literature, all the clinical manifestations described under these various headings may exist as evidences of any one of a number of different infections, the nature and severity of the symptoms depending upon the character and virulence of the infecting organism, and the degree of individual resistance. In the light of our present knowledge, therefore, and for the purposes of simplicity, and to stimulate investigation, we would include all these conditions under the term—infections of the newborn. If any attempt at classification is to be made today, it must be on a purely bacteriological basis.

In order to give a more definite idea of the type of cases

* Read at the meeting of the American Pediatric Society, Washington, D. C. May 12, 13 and 14, 1903.

which we would include under this heading, we cite a few illustrative instances:—

CASE I.—(Previously reported by one of us.) A male infant, born at term at the Maternity Hospital, of Philadelphia, after a normal labor. He weighed 3,350 grams at birth. The cord separated without incident rather earlier than usual. The infant continued normal until the sixteenth day, when he developed a slight stomatitis. The temperature was normal. On the following day, a slight elevation of temperature and green stools were noted. By the next day, there was an almost constant flow of blood from the mucous membrane of the mouth, marked exhaustion, inability to nurse, and bright red blood was passed in the stools. During the succeeding night and the next day (the day of death and the nineteenth since birth), the infant emaciated rapidly and had a series of convulsions which lasted up to the time of death.

The Autopsy was made by Dr. Joseph Sailer. The essential features noted were a hemorrhagic effusion around the umbilicus, a hemorrhage into the wall of the umbilical cord, a hemorrhagic effusion into the peritoneum and intense congestion of the mesentery. The mesenteric lymph nodes were not enlarged and there were no ecchymoses. The spleen was normal. The ileum contained altered blood. Neither the intestinal tract nor the stomach showed congestion or ulceration. The esophagus was filled with blood-stained mucus. The liver was enlarged, soft, and its appearance on section was distinctly cloudy. The adrenals and kidneys were normal. The brain was edematous and its membranes very cloudy, but otherwise normal.

An extensive histological examination was made by Dr. Sailer, which may be summed up as follows:—There was a generalized parenchymatous degeneration of the organs, a sclerosis of the pancreas, an acute enteritis and a commencing cirrhosis of the liver. Cultures were made at the autopsy from the heart's blood, left lung, spleen, liver, peritoneum, brain, contents of the ileum and the bile. The staphylococcus pyogenes aureus was recovered from the heart's blood, spleen and brain; the bacillus aerogenes lactis was determined in the heart's blood, spleen, peritoneum and in plates made from the contents of the ileum. From the bile were recovered the bacillus aerogenes lactis and a typical growth of the bacillus pyocyaneus. From the liver tissue, the three microorganisms mentioned were obtained. All three microorganisms, when isolated, proved pathogenic to guinea-pigs.

CASE II.—(Previously reported by one of us.) For the clinical notes of this case we are indebted to Dr. Bolles, resident physician of the Maternity Hospital. The infant was born after a normal labor on the 10th of January, 1902. The child was not asphyxiated; there was no history or evidence of syphilis in the mother. His temperature was slightly elevated from the second day; on the seventh day he developed a papular eruption on his face. His temperature rose suddenly with the appearance of the eruption to 104° F. He took nourishment well and had no gastrointestinal disturbance. His temperature fluctuated between 101° and 104° F., from the eighth to the twelfth day. The facial eruption persisted, and a similar eruption developed over the neck, shoulders and flexor surface of the arms. The persistent fever was attributed to this eruption.

On the thirteenth day "the baby developed symptoms suggestive of pneumonia"—rapid respiration and a harsh vesicular murmur. The temperature became a little more elevated. A cotton jacket was applied.

On the fourteenth day, marked twitching of the muscles of the right eye and constant lateral rotation of the head were noted. There were no general convulsions. The child did not cry out. He nursed poorly and was somewhat cyanosed.

On the fifteenth day the temperature was less high, 102° F., and he seemed generally better.

On the sixteenth day, the day of death, the temperature rose to 106.8° F. at 8 A.M. The child vomited a large quantity of blackish material, which was evidently altered blood, and had several tarry stools. The face became much cyanosed; great restlessness ensued, and death occurred rather suddenly at midday.

The Autopsy was made by one of us twenty hours after death. A papulopustular eruption was present on the face, neck, forehead, shoulders, arms and upper part of the chest, in some areas it was hemorrhagic, especially over the flexor surfaces of the arms. The umbilical stump was not entirely healed, and rather unhealthy in appearance.

Thorax.—Both auricles were distended with liquid blood, the right more than the left. The veins of the heart were greatly distended. The lungs showed some congestion at their margins.

Abdomen.—The umbilical arteries contained thrombi. The principal lesions were some congestion of the vessels of the mesentery and enlargement and congestion of its lymph nodes.

The stomach contained some blackish material having the appearance of altered blood. There was no congestion nor erosion of its mucous membrane. The intestines contained nothing abnormal. The liver on section was yellowish in color and rather soft. The spleen was moderately congested. The kidneys were anomalous.

Brain.—On opening the cranium, following the lines of the sutures, there was found, overlying the left hemisphere, a large mass of clotted blood, more marked, anteriorly. This extended into the substance of the brain causing some destruction of tissue. Overlying the right hemisphere there was a less marked hemorrhage. The superior longitudinal, the left lateral and the straight sinus and the vena magna Galeni contained firmly organized thrombi. The veins of the brain throughout were distended with blood, and some of the superior cerebral veins on the left side contained thrombi; both lateral ventricles were dilated and contained considerable blood, especially the left.

Cultures were made on blood serum from the thrombus in the umbilical artery and from the spleen. There was a moderate growth on each tube. Cultures from the heart's blood were contaminated. Agar slant transfers showed profuse growth after twenty-four hours; one showed a pure growth and the other an almost pure growth of a bacillus, possessing practically the same cultural characteristics as the colon bacillus, although not absolutely typical.

CASE III.—The clinical notes of this case were also prepared by Dr. Bolles. The infant was born on April 3d, in the Maternity Hospital, after a labor with a prolonged first stage. It showed no abnormality, but was poorly nourished and small. It nursed well at first. On the fifth day there was some oozing of blood about the matrix of the nail of the index finger of the right hand. On the same day it became jaundiced. On the sixth day it had a hemorrhage from the mouth while nursing and profuse bleeding from the first finger and thumb of the right hand and later in the day from all the fingers, together with some bleeding from the umbilicus. The infant cried and moaned constantly, apparently from pain. The jaundice became more marked and the breast was refused. During the following night there was a severe hemorrhage from the vagina, the rectum and the umbilicus. During the seventh day a subcutaneous hemorrhage appeared over the middle third of the right tibia. Two convulsions occurred during

the following night. The hemorrhages continued the following day and it was noted that the napkins were "soaked through." Emaciation became rapid and the jaundice more intense. There were some hemorrhages from the corneal vessels. The infant had several convulsions during the day; it became rapidly weaker and died after an extraordinarily profuse hemorrhage from the navel at 11 P.M.

Autopsy was made by one of us eleven hours after death. The principal lesions were subcutaneous hemorrhages over the extensor surface of the left thumb, the anterior surface of the left wrist and the outer surface of the tibia.

Abdomen.—The mesenteric lymph nodes were enlarged and congested and the mesenteric vessels were full.

The intestines and stomach contained, throughout their course, a tarry substance resembling altered blood. There was moderate inflammation of the mucosa. There were several small hemorrhagic areas in the large intestine but no ulceration and no enlargement of the follicles. The bladder contained some bloody fluid. The vaginal mucous membrane was pale and there was no evidence of hemorrhage into the uterus.

The liver was enlarged and yellowish on its surface and on section. The left kidney showed an extensive hemorrhagic area limited to the anterior surface. There was no hemorrhage into the pelvis of the left kidney. The hemorrhagic area referred to was limited to the cortex. There was slight congestion of the left suprarenal. The right kidney showed numerous hemorrhagic areas throughout the medulla and cortex. There was no hemorrhage into the pelvis. The right suprarenal was more congested than the left and there was a slight hemorrhage into the medullary portion. The spleen was moderately enlarged and much congested. There were no thrombi in the renal vessels.

Thorax.—There were numerous small hemorrhagic infarcts scattered through both lungs. There was some clotted blood in the larger branches of the right bronchus. The thymus gland was larger than normal but not congested. There was a small amount of fluid in the pericardium which was unusually yellowish in color. There was nothing abnormal about the heart.

Brain.—There was considerable congestion of the veins of the brain, especially over the right hemisphere. There was very little blood and no thrombi in the sinuses. There was no hemorrhage into the ventricles nor into the substance of the brain.

Whether or not the bloody urine was a hematuria or hemoglobinuria was not determined. The case bore a close resemblance to so-called Winckel's disease.

Cultures made from the heart's blood, the clot in the umbilical artery and from the spleen showed a pure growth of the staphylococcus aureus. The microscopic examination of the liver, kindly made by Dr. C. Y. White, showed some fatty infiltration, together with some fatty degeneration of the cells. Microscopic examination of the long bones showed no evidence of syphilis.

CASE IV.—Baby Young. Born on April 7, 1903, in the Maternity Hospital, after a normal labor, lasting eleven hours. The previous and present health of the mother was good. The father was healthy. There was no history of syphilis.

The temperature was elevated to 102° F., at birth. The condition of the infant was not brought to our attention by the hospital resident until about twenty-four hours before death. The stools had been abnormal since birth. On the third day, it was noted that they were greenish in color and slimy. The child nursed poorly. On the fifth day a small cyst, containing clear fluid, was observed in the sublingual region. The cyst had increased in size by the following day and the character of the stools remained unchanged. On the morning of the seventh day (the day of death), the child developed nystagmus and marked twitching of the muscles of the mouth. There was a slight bloody discharge from the lower bowel. The diarrhea became more marked. There were no hemorrhages from any other part of the body. The child became increasingly cyanotic. The pupils contracted; the cornea became somewhat opaque. Small papules and pustules were noted on the neck and face. The child moaned constantly and refused to nurse. Respirations became increasingly difficult; almost persistent marked contractions of the muscles of the neck and lower jaw developed with intermittent general convulsions. Death occurred in the middle of the afternoon.

The Autopsy was made by one of us eighteen hours after death. The chief points of interest were a papular and papulopustular eruption on the forehead, cheeks, neck and shoulders. There were ecchymotic areas on the neck. No eruption elsewhere. The umbilical stump had an entirely healthy appearance.

Abdomen.—The mesentery was congested. The lymph nodes were enlarged and deeply cyanosed. The stomach contained a moderate amount of altered blood. There was decided congestion

of the mucosa in the pyloric and cardiac areas; a few hemorrhagic areas but no ulceration. There was moderate congestion in the lower part of the ileum and one or two Peyer's patches were congested. The most marked congestion, however, was in the colon. This extended throughout its entire length, being especially evident in the upper part of the sigmoid and in the descending colon. There was marked enlargement of the isolated follicles and many ecchymotic areas, but no naked eye evidences of ulceration. The spleen was enlarged and purplish on section. The liver was enlarged and mottled, yellowish purple on the surface and on section. Both kidneys were congested, especially the right, the latter containing some hemorrhagic infarcts. The right suprarenal gland was congested and the left hemorrhagic. The bladder was empty and there was no congestion or hemorrhage into its mucous membrane.

Thorax.—The bronchial and all the mediastinal lymph nodes were enlarged and deeply congested; some of them almost hemorrhagic. Both lungs were generally congested but crepitant throughout. Both auricles and the vena cava were distended with liquid blood.

Cranium.—The amount of cerebral fluid was increased above the normal. There was considerable fullness of the vessels at the base of the brain and moderate fullness of the superior cerebral veins. The sinuses were empty.

Cultures were made from the heart's blood, spleen, umbilical cord and lungs. A pure culture of the staphylococcus pyogenes aureus was obtained from the heart's blood, umbilical cord and the lungs. Cultures from the spleen were negative. Guinea-pigs were inoculated from a first subculture. The organism did not prove pathogenic, probably owing to the well-known rapid deterioration in the virulence of this particular microorganism.

CASE V.—Baby Letters. Born at Preston Retreat, after a normal labor on the 17th of February, 1903. The temperature was normal at birth. It rose to 101° F. the following day and continued above normal until death. On the third day, the temperature became suddenly elevated to 105° F. The child developed rapid (60 per minute) labored respirations and cyanosis. The cyanosis varied in its degree of intensity from time to time. The pulse rate increased with the respirations. On the fifth day, the child had green, mucons, undigested stools. Up to this time, there had been no intestinal symptoms. There were no hemor-

rhages at any time and no convulsions or muscular twitchings. The cyanosis and rapid respirations increased persistently up to the time of death on the seventh day and led to the diagnosis of pneumonia.

The Autopsy was made by one of us ten hours after death. There were no skin eruptions. The umbilicus was healthy in appearance.

Abdomen.—The umbilical vessels contained clots. The mesenteric vessels were full. There was marked congestion of the omentum. The large intestine was quite empty; the upper part of the small intestine and the stomach contained a bluish substance. On opening the colon, the mucous membrane was found extremely congested and in some places hemorrhagic. The same conditions existed in the small intestine. The blackish substance in the upper part of the small intestine and in the stomach was altered blood. The mucous membrane of the stomach was less congested than that of the intestines. The spleen was normal, the liver congested.

Thorax.—The left pleural cavity contained about a tablespoonful of clotted and liquid blood. There were no adhesions between the parietal and visceral pleuræ. The left lung contained numerous large hemorrhagic infarcts. The right lung was almost completely atelectatic. There was one hemorrhage infarct at its base, posteriorly. The bronchial lymph nodes were hemorrhagic. The minute vessels of the visceral and parietal pleuræ were very full. The point of origin of the hemorrhage could not be determined. The thymus, heart and vessels were normal. Examination of the brain was not permitted.

Cultures were made on agar-agar slants and in litmus milk from the clots in the umbilical vessels, the liver, the spleen, the blood in the pleural cavity and the heart's blood. Bouillon cultures were made also from the heart's blood. All these cultures were negative except the bouillon cultures from the heart blood. From this was obtained a pure growth of the bacillus coli immobilis. This microorganism, injected subcutaneously and intraperitoneally, proved pathogenic to guinea-pigs, causing diffuse subcutaneous hemorrhagic infiltration, hemorrhagic peritonitis, pleuritis and pericarditis, and enlargement and congestion of the liver, spleen and suprarenals. The same microorganism was obtained in pure culture from all the organs and the serous cavities.

There is one other case in our series, which showed much the

same lesions and in which the bacillus coli immobilis was isolated. It was also pathogenic to guinea-pigs causing similar lesions.

CASE VI.—Baby Smart. Was born in the Maternity Hospital on the morning of April 17, 1903. The temperature was normal at birth and had fallen to 97° F., by the evening of the 17th. It became elevated to 101° F., on the morning of the second day and continued above normal during the remainder of life, fluctuating between 99° and 104° F. On the third day the stools became yellowish-green and loose, and contained mucus. The child lost weight persistently from birth, but aside from the persistent temperature and correspondingly increased pulse and respiration rate and the character of the stools, nothing else abnormal was noted until the evening of the 26th of April (ninth day), when dusky red spots developed on the lower anterior portion of the tibia and on the extensor surface of the forearms. These areas rapidly became indurated and extended with marked rapidity involving, by the following morning, both cheeks, the buttocks, the flexor surfaces of the feet, the extensor surfaces of the left arm, the fingers of the left hand, but not the thumb. The areas on the face were circular in character, extending from above downward, from the lower lid of each eye to the base of the lower jaw, and antero-posteriorly from the nose to the ear. All of these areas became indurated. The redness disappeared on pressure of the finger, to return again quickly, there was no pitting and the margins were distinctly limited. During the course of the day, the index finger of the left hand became bluish black, and, by the following morning (the 28th), all of the fingers, a portion of the extensor surface of the left hand and, in fact, all of the indurated areas, were gangrenous. There was no change in the character of the fever at this time. The child emaciated rapidly and, on the evening of the 28th, had a slight intestinal hemorrhage. The respirations became labored, muscular twitchings developed on the 29th and after midday the infant developed convulsions, which persisted until death, on the morning of April 30th (the thirteenth day).

The areas of induration described, aside from their color, closely simulated sclerema neonatorum. The area of distribution was suggestive, but the failure to spread after a period of ten or twelve hours was not entirely characteristic. Blood cultures were made during life, prior to the development of the condition just described, from a vein in the left forearm. Later

cultures were made from blood obtained from an incision made over one of the areas of induration. At the time of this incision, it was noted that the surface redness was very superficial; that the deeper tissues were distinctly whitish in character and had the appearance of hardened subcutaneous fat.

Autopsy.—A postmortem examination was obtained, only after much arguing with the father, and was limited absolutely to an abdominal incision. This incision was, however, extended sufficiently to enable us to expose the heart and to obtain cultures from the heart's blood. The principal changes noted were a mottled yellowish purple color of the liver, a normal spleen, moderate enlargement and congestion of the mesenteric lymph nodes, and small clots in the umbilical vessels; there was moderate congestion of the mucosa of the lower portion of the large intestine. There was some altered blood in the stomach but no inflammation of its mucosa. The small intestine was normal. The bronchial and the mediastinal lymph nodes were deeply congested. Cultures were made from the spleen, the lungs, the umbilical vessels and the heart's blood. In all of the cultures made during life and in the cultures made from the heart's blood, postmortem, there was found the staphylococcus aureus and a streptococcus.

ETIOLOGY.—Hemorrhagic conditions in the newborn may, in certain instances, be due to some of the causes formerly held accountable for all such manifestations. Among these may be mentioned birth trauma, fetal malformations, asphyxia and syphilis. In the vast majority of instances, however, hemorrhages may be considered as symptoms of an infectious condition.

Strong evidence in favor of the infectious nature of all such conditions, as melena, Winckel's disease, etc., rests in the fact that they are observed almost exclusively in institutions and not uncommonly in epidemic form. One peculiar feature of this last observation is that bacteriological studies, while proving the cases infectious, have commonly failed to demonstrate the presence of the same microorganisms in all of the cases, a result which suggests that these infections are more often dependent upon the deficient technique of a poorly trained nurse than upon defective conditions in the ward.

The nature of the infecting organism varies widely. In the 6 cases we record, six different microorganisms were isolated, viz.: the bacillus pyocyaneus, the bacillus lactis aerogenes, the

colon bacillus, the staphylococcus aureus, the bacillus coli immobilis, and a streptococcus. In our complete list of cases, amounting to about 15, only one other microorganism, an unclassified micrococcus, has been encountered. The literature, however, contains instances of infection by the pneumococcus, Pfeiffer's bacillus, the bacillus of Babés, the bacillus hemorrhagica of Kolb, the bacillus of Gaertner, the encapsulated bacillus of Dungern, the pneumococcus and a bacillus closely resembling the pneumococcus, but differing from it in certain essential characteristics, (Kilham and Mercelis). Of these various microorganisms, the streptococcus, the bacillus coli commune and the staphylococcus are the ones which have been most commonly encountered. Delestre, for instance, in a series of ante and postmortem blood cultures made from infected infants, premature and born at term, obtained positive results in thirty-seven. In this number, the streptococcus was found fourteen times, the colon bacillus ten times, and the staphylococcus six times.

THE ORIGIN OF THESE INFECTIONS.—As has been said, these infections occur most frequently in maternity hospitals. The opportunities for the dissemination of disease germs in institutions are extraordinarily great. Without the utmost precaution, their presence is unavoidable. Bacteriological investigations have shown the presence of various microorganisms in the air and dust of the wards, especially in the region of the clothing from the patients and their beds. The air is probably infected through the medium of the clothing and hands of attendants, the stools and buccal secretions of the patients, the bed clothing and the infants' napkins. It is possible, therefore, that air infections do sometimes occur.

The mother's milk has been held accountable and doubtless is responsible for a small percentage of cases. In the presence of suppurative lesions of the breast pathogenic microorganisms are most liable to be introduced. In milk from apparently normal breasts microorganisms, mainly the staphylococcus aureus and albus and the streptococcus, have been isolated. The nature of these microorganisms and the fact that in the udder of the cow concealed foci of suppuration are not uncommon, would suggest the likelihood of a similar condition in the human breast.

A source of infection that has been noted is the bath water of the infant. In certain instances, recorded in the literature, the use of the same water for the ablutions of several infants has

resulted in infecting the water; bacteriological studies of such water have shown the presence of some of the microorganisms mentioned. The placing of infants in beds which have been previously occupied by infected infants and the bedding together of the infected and noninfected, has resulted in conveying the infection. Admitting, as we do, the accountability of all these sources, we are inclined to believe that the most common medium of infection is the poorly trained or careless nurse. In the institutions in which we have observed these cases, even when they have occurred in epidemic form, we have noted that the cases have not been confined to any one ward; that they have been handled by the same nurse and that the bacteriological studies have shown the presence of different microorganisms in the different cases. The records in the literature show very few instances of epidemics in which any one microorganism has been held accountable for all the cases. These facts, we think, argue against the greater frequency of air infections.

It is impossible to definitely fix upon the port of entry. The statements just made, together with our general observations, lead us to believe that the buccal cavity, the tonsils, pharynx and the remainder of the alimentary tract, is the most common. Next in order we would implicate the lungs. We believe that the cord has been given too great prominence as the point of entrance and that the other avenues named—the skin, conjunctiva, nose, ears and urogenital tract—are rarely responsible.

POSTMORTEM APPEARANCES.—The appearances observed post-mortem may be summed up in the words “congestion” and “hemorrhage.” These vary in great degree in different cases. In some instances there are no hemorrhages whatsoever, but one rarely fails to find a considerable degree of congestion of the spleen, the mesenteric lymph nodes, the kidneys, suprarenals, liver, stomach or intestines. There is usually marked fullness of the mesenteric vessels; sometimes amounting to hemorrhage. The mucosa of the stomach and intestines, especially that of the large intestine, in many cases, is inflamed and thickened. The isolated follicles and Peyer’s patches may or may not be enlarged. Ulceration in various portions of the gastrointestinal tract has been recorded. Ulceration of the duodenum just below the pylorus was observed by Landau and by him attributed to the blocking up of the gastroduodenal artery by an embolus, originating from a thrombus in the umbilical vein. Two similar cases have been

reported by Kling. The liver, the kidneys and the suprarenal glands may be the seat of small or large hemorrhages. Instances have been recorded in which a hemorrhage into these organs or into the perirenal tissues has secondarily ruptured into the peritoneum, giving rise to profuse fatal hemorrhage. Bloody effusions into the serous sacks are of frequent occurrence. The bladder sometimes contains bloody urine, its mucous membrane may be inflamed and sometimes ecchymotic.

The changes commonly noted in the thoracic organs are: marked enlargement and congestion of the mediastinal nodes, various degrees of congestion in the lungs, hemorrhagic infarcts, limited areas of, or sometimes, complete atelectasis and occasionally pneumonia. The thymus is frequently congested, and may be hemorrhagic. The right auricle and ventricle ordinarily contain liquid or partially clotted blood. The heart muscle is sometimes soft and its vessels are frequently enormously distended. The blood in some infections seems to retain its fluidity to a remarkable degree, although instances of antemortem clotting have been noted. Thrombosis and embolism are common.

Brain.—The changes consist of various degrees of thickening of the membranes, moderate or severe congestion, subdural hemorrhage, sometimes hemorrhage into the substance of the brain or into the ventricles. Extensive thrombosis of the sinuses and acute hydrocephalus have been noted.

Histological studies have been comparatively few and incomplete. The principal changes are those commonly found in infectious conditions; namely, cloudy swelling, fatty degeneration and infiltration of the liver and kidneys, in addition to the various changes resulting from hemorrhage.

SYMPTOMS.—These infections may occur during, before or after labor. Most often they occur within the first week of life, although their onset may be delayed beyond the fifteenth day. Their degree of severity seems to differ according to the virulence of the infection. Profound toxic symptoms, suggesting disease of special organs, such as the lungs, may occur, the autopsy revealing absolutely no pulmonary lesion. On the other hand, the course of the infection may be attended by few symptoms. The symptoms have no definite order of occurrence. Fever is usually early manifested, and may vary from a slight elevation to hyperpyrexia, 108° F. having been recorded in one of our cases. Diarrhea, with malodorous, undigested, greenish, mucous stools, is present

in the majority of cases. Icterus may occur and is sometimes intense. Skin eruptions of almost every description have been noted. The most common are: petechia, ecchymoses, bullæ, erythemata, erysipelatoid eruptions, and especially a papular or papulovesicular eruption, frequently going on to pustulation and involving the face, neck, shoulders and flexor surfaces of the arms. Apathy, rapid and persistent emaciation and inability or disinclination to nurse are always noted. Hemorrhage of varying degree, from either the skin, umbilical cord, eyes, ears, nose, mouth, vagina, bladder, stomach and bowels usually happens at some time during the course of the disease. Nervous phenomena are varied; they consist mainly of convulsions, retraction of the head, nystagmus, twitching of the muscles, tetanic and tonic spasms, strabismus, changes in the pupils, and sometimes paralysis. Cyanosis and rapid, labored and irregular respirations, usually toxic in origin, may occur early or, more frequently, late in the disease.

DIAGNOSIS.—But little need be said in relation to the diagnosis of these conditions. Any decided elevation of temperature, notwithstanding the frequency of fever at this age, should arouse suspicion. It may be the only evidence of the condition for several days. In most of the cases we have seen, enteritis has been an early symptom, and next in order, perhaps, is the occurrence of the papular or papulovesicular eruption involving the skin of the face, neck, shoulders and forearms. If, therefore, one observes this combination—fever, greenish, mucous stools, a skin eruption of the character described, and rapid emaciation—one is justified, from the therapeutic standpoint, in considering the condition infectious. If to these manifestations are added hemorrhage, nervous phenomena, cyanosis, and rapid, irregular or labored respiration, the evidences of an infectious condition are complete. Confirmatory data and definite information as to the character of the infection can be obtained by cultures made from the blood.

Several of the cases which we have had the privilege of studying only after death had been diagnosed inspiration pneumonia, this conclusion being based on the presence of fever, labored and rapid respiration, harsh respiratory murmur and cyanosis. Given the ordinarily accepted diagnostic symptoms of pneumonia in the newborn, rapid, labored respirations, recession of the chest wall and cyanosis, because of the comparative infrequency of pneumonia, the assumption that the condition is a blood infection

rather than a true lung involvement, is justifiable. The differentiation between these conditions on the basis of the symptoms and physical signs, is not possible.

THE PROGNOSIS of these infections is distinctly bad. Mild infections do occur and, in some instances, the patients recover when the condition seems hopeless. It is a not uncommon occurrence, in private practice, to see mild cases of so-called melena recover, but in institutions the mortality from infections of any type is extraordinarily high.

PREVENTION.—In the light of what has been said in reference to the source and mode of entrance of these infections, it is evident that their prevention is, in large part, possible, and that this is to be accomplished by measures directed toward the improvement of the general aseptic technique of our maternity hospitals. We would recommend that, in the construction of maternity hospitals, every effort be made to insure ease of cleanliness. Only the necessary attendants should be admitted to the wards. They should wear overgowns or large aprons and cuffs, which should be changed daily. Each morning before entering the wards their hands should be scrubbed for at least five minutes with soap and water, and washed again immediately after the changing of beds, the changing of napkins, or handling of the bed pan, and always before handling the infants. The general cleanliness of the nurse, especially the proper toilet of the mouth, should be insisted upon. The infants should be kept in separate wards from the mothers and be in the charge of a special nurse. The resident and attending physicians should follow the same precautions suggested for the nurse.

We would recommend that the cord be tied, as is usual, before it is severed, with an aseptic ligature by aseptic hands, and that it be immediately dressed with a sterile dressing. We question, to some extent, the advisability of the routine measure of cleansing the infant's mouth, unless it is done under the most aseptic conditions.

The nurse who has handled the bedding of a patient, treated a fissured breast, emptied a bed pan or changed a napkin, unless she be most careful in preparing her hands, will readily infect the mouth of the infant. The condition of the breasts of the mother should be carefully studied. The recognition of erosions, fissures, or any other pathologic condition, should result in the immediate withdrawal of the infant. The common custom of suckling the

infant under these conditions is to be strongly condemned. The normal breasts and surrounding areas should be most carefully cleansed before and after each nursing. Infants should not be permitted to suckle mothers suffering from puerperal septicemia. When cases of infection in the mother or infant occur, the wards which they have occupied should be closed and fumigated.

MEDICAL TREATMENT.—Infection once established, there is comparatively little that can be done for these patients in the way of treatment. In an extensive epidemic of streptococcic infection, occurring in the Maternity Department of the University of Pennsylvania Hospital a few years ago, it was accidentally discovered that two of the infants suffering from infection, when sent to their homes, rapidly recovered. It has been recorded, as a measure of treatment, that isolation of these cases, in hospitals, has a beneficial effect upon the patients. It is desirable, therefore, to isolate these infants as soon as suspicious symptoms arise, placing them in bright, sunny, well-ventilated rooms. Delestre, in making a series of blood cultures from infections of the newborn, under the direction of Hutinel, noted, to his great surprise, that the withdrawal of 2 or 3 c.cm. of blood resulted in some improvement of the condition of the infant. Encouraged by this fact, he withdrew from some infants from 15 to 20 c.cm. of blood, immediately injecting, subcutaneously, 20 to 30 c.cm. of artificial serum, with very beneficial results. He makes the following statement: "I have seen infants cyanosed, cold and practically moribund, resuscitated, positively, under my eyes as a result of this measure." He accounts for these results by the fact that the withdrawal of the blood acts in stimulating the activity of the hematopoietic and lymphopoietic organs.

We have had no experience with this measure. Judging from the difficulty one encounters in securing sufficient blood to make satisfactory blood cultures, one would naturally question the ability to secure this quantity of blood at a single bleeding, as Delestre claims to have done. In the light of the great mortality of these cases, and of the extravagant claims he makes for it, one would be justified in applying it.

The medicinal treatment is the same as that applied to all cases in which we are unable to influence the etiological factor, namely, the treatment of the symptoms. All infectious conditions, especially in those who are possessed of such low resistance, require vigorous stimulation and good nourishment. In some instances

we have used high intestinal injections without beneficial results.

NOTE.—The bacteriological examinations in cases 4, 5 and 6 were kindly made for us by Dr. Joseph S. Evans, Associate in Bacteriology in the Pepper Laboratory of Clinical Medicine.

DISCUSSION.

DR. KOPLIK.—I do not see the necessity in maternity hospitals for cleansing the mouths of the infants. The newborn infant's mouth is clean, and if you do not introduce anything infectious into it you will probably not cause an infection. Therefore, in a maternity hospital the principal point should be to cleanse the mother's breast and to keep the nipples thoroughly clean before, and during the intervals of, nursing.

At the City Hospital, some years ago, I was asked to see a number of children who were supposed to have been born with so-called ulcers in the mouth. When I examined these newborn babies I saw that they had what is familiar to all of us as Bednar's aphthæ, and these in some cases were covered with a yellowish pseudomembrane. Upon inquiry it seemed that these children developed these aphthæ immediately *after birth* and in some cases there was a spread of the ulceration in the mouth. I begged the physician in charge to stop washing the mouths of the babies, and as if by magic this so-called epidemic disappeared. I do not know what they do there to-day, but at that time they began the process of keeping the breast nipple clean and leaving the mouth of the infant absolutely alone. The credit of this method of managing the mouth belongs to Epstein, of Prague, who has carried it out successfully for years in the maternity hospital of that city.

DR. ROTCH.—Just before I came away I saw a child which impressed this fact upon me very forcibly. A perfectly normal mother gave birth to a perfectly normal child. She had successfully nursed three other children. The child for three days remained well; the movements were normal. At the end of the week I was called to see the child, who had some intestinal trouble. The movements were of a greenish color and contained some mucus; there was some pain, and on inquiring into the cause of the trouble I found a fissured nipple with a little pus in it. It was carefully treated and cleansed, and immediately the diarrhea disappeared. I do not think there could have been any question in this case but that the fissured nipple with its bacterial contents was the direct etiologic factor in causing the intestinal trouble in the newborn. I have observed this in other cases. Nothing else was done in the treatment of this child than the cleansing of the nipple, and it rapidly recovered.

DR. SHAW.—I should like to speak of a rather interesting case

I had last summer. I was called to see a baby on the twelfth day after birth. The mother had one of the best nurses in Albany. All went well until the eighth or ninth day, when the child passed a good deal of mucus. The physician gave some castor oil and the trouble cleared up, but the baby began to fail and became much emaciated. The child had two or three slight convulsions. The next day it died, and we were permitted to have an autopsy. Macroscopically, there was nothing found at all; there was no congestion of the lungs; no inflammation of any of the serous or mucous membranes, and there was nothing, so far as we could see, to account for the condition. A bacteriologic examination was made, and the findings are of especial interest after Dr. Hamill's paper. In the blood we found staphylococcus pyogenes albus; in the lungs streptococci and staphylococcus pyogenes albus; in the intestines we found coli communis, and in the pus around the umbilical cord we found bacillus proteus vulgaris and an unidentified coccus.

It seems to me that the subject is of very great importance, and I agree with Dr. Hamill that the classification is rather ambiguous, being based on the symptomatology, while the underlying cause is similar in a great many of these so-called infections of the newborn.

Prolapsus Ani in Children — Paraffin Injections.—For the relief of rectal prolapse in children Karewski (*Centralblatt für Chirurgie*, July 12, 1902) has employed subcutaneous injections of paraffin having a melting point of 56° to 58° C. The patients, purged for two days, on the day previous to operation received large doses of bismuth to lock up the bowels. The field of operation was disinfected and the prolapse was reduced. A finger was then introduced into the rectum to act as a guide. Through one needle puncture the paraffin was injected in the form of a ring above the anus between the skin and mucous membrane. By suitable diet and the administration of bismuth an evacuation of the bowels was prevented for the following twenty-four hours. Eight children between two and eight years of age were treated by this method. One case was unsuccessful because of a faulty technique, but all the remainder were cured so far as could be judged from examinations made in from two to six months since the operation. In 2 cases the paraffin had to be injected a second time, and in a case of an idiotic, feeble child a third injection was made. In the remaining cases a single introduction of paraffin sufficed. Although in some of the cases the bowels moved during or shortly after the operation, an infection never occurred, because the injection wound was kept protected. The author believes this treatment would give satisfactory results in adults.—*Therapeutic Gazette*.

INJURIES AND INFECTIONS OF NEWBORN CHILDREN.*

BY IRVING M. SNOW, M.D.,
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In the consideration of this subject we must first study

INFANT MORTALITY IN THE FIRST MONTH OF LIFE.

The first four weeks may be regarded as the most dangerous period of human life; nearly one-tenth of the race succumb in the first month of existence. As a result of scientific midwifery and strict asepsis, puerperal fever has practically disappeared; yet, as I shall be able to prove to you, the morbidity and mortality among young infants remains lamentably high. Beside the injuries of parturition and asphyxia the infant is far more susceptible to infections than the mother. Sudden death is very common, often due to unrecognized intracranial hemorrhage, atelectasis, or pneumonia.

Eröss massed the vital statistics of sixteen large capitals of Europe, including 1,439,000 births. He found that 130,610, 9.5 of all children born, died in the first four weeks of life. In Budapesth, where the mortality in the first month is 8.11, he discovered that of these children 37 per cent. died in the first week, 29 per cent. in the second week, 21 per cent. in the third week, and 13 per cent. in the fourth week of life. The deaths in the earlier days were principally due to malformations, injuries of parturition, and asphyxia. After the first week infections caused the majority of fatalities.

Axel-Johannessen states that the susceptibility to disease lessens with each month of life; the victims of congenital weakness, malformations, injuries of parturition die first and the survivors continually gain resistance to disease.

The following are Norwegian statistics. (Mortality by months of the first year of life.)

1st month — 3.41 per cent.	4th month — .67 per cent.
2d “ — .99 “ “	5th “ — .62 “ “
3d “ — .76 “ “	6th “ — .56 “ “

* Read at the meeting of the American Pediatric Society, Washington, D. C., May 12, 13 and 14, 1903.

7th month — .52 per cent.	10th month — .45 per cent.
8th “ — .50 “ “	11th “ — .41 “ “
9th “ — .47 “ “	12th “ — .40 “ “

9.80 per cent. in the first year.

The same excessive death rate exists in Buffalo. During the year ending December 1, 1902, there was 7,290 births and 5,080 deaths. Of the deaths 471 were in children under one month. Thus, 9.30 of all children born in Buffalo die in the first four weeks, and the death rate in the first months forms 6.4 per cent. of the total mortality. Of these children

182—38.5 per cent.—died in the first 24 hours
141—30.0 “ “ — “ 2d-7th day of life
78—16.5 “ “ — “ 2d week “ “
34—7.3 “ “ — “ 3d “ “ “
36—7.6 “ “ — “ 4th “ “ “

It may be said that this is a normal mortality, that a large number of children are born who are incapable of living, but this position is erroneous. If we turn to the statistics of Norway (which has the lowest infant mortality in the world) we find that among 1,000,000 births in the rural districts from 1876-1898 the death rate in the first month is 3.38 per cent., about one-third of that of Buffalo. The records of a Norwegian country parish, Gloppen, have been carefully kept for 200 years. From 1687-1711 the mortality in the first month was 12.87 per cent.; it has now fallen to 3.38 per cent., a diminution of about three-quarters. In the city of Prague the mortality in the first month is 14.2 per cent.; in the Prague Hospital it is 3.3, showing conclusively that the life of the newly born child is most favorably influenced by good midwifery and nursing.

In contrasting the statistics of Buffalo with those of Eröss we see that the mortality in the first month is 9.3 per cent., which is about the same as in the cities of continental Europe, 9.5 per cent.; but in comparing the length of life, we notice that nearly double the number, 68.5 per cent., die in Buffalo in the first week, to 37 per cent. in Europe. The number dying from the seventh to twenty-eighth day in Buffalo is 32.5 per cent., in Europe 63 per cent. We may, therefore, draw the conclusion that more children die with us from accidents of parturition and fewer from infections than in Europe.

As to the causes of death the malady or condition is often so

vaguely described, that it is evident that a confusion of ideas exists. In Eröss' report, congenital debility is the most common term, claiming 80 per cent. of deaths in the first month. It is, however, noteworthy that in Cologne in 1866-68, 5.20 per cent. of all children born were recorded as dying of congenital debility, and in the next decade only 0.7 per cent. were returned under the same title, indicating that the Cologne physicians had changed their phraseology.

Without doubt many infants are born before the full period of gestation, but they die of atelectasis, infections, meningeal hemorrhages. Absence of lesions does not indicate absence of microbes, which may be found in the fluids of apparently healthy tissues. A very large number of prematurely born, underweight babies, reported as dying of immaturity, die of pulmonary or gastroenteric infections, or of cranial hemorrhage.

The mortality in early life is due to: (1) immaturity; (2) malformations incompatible with life; (3) asphyxia and atelectasis; (4) injuries of parturition and (5) various infections.

There were reported sixteen deaths from malformations, principally of the head and spine; nineteen deaths from congenital heart disease. This hardly seems creditable as patent foramen ovale and ductus arteriosus are compatible with prolonged existence. Cyanosis as a symptom of congenital heart disease is also seen in imperfect expansion of the lung and various infections.

From injuries of parturition,	21 deaths	—	4.5 per cent
“ convulsions	- - 25	“	— 5.3 “ “
		—	9.8 “ “

The conditions of asphyxia and intracranial hemorrhage are most closely associated. The effect of prolonged difficult labor, abnormal presentations, not only favors the aspiration of foreign substances into the lungs and paralyzes the medullary respiratory centres with CO₂, but it also causes cerebral hemorrhages from traumatism, in the application of the forceps, by the nipping of a cerebral sinus in the forcible moulding of the head. Further, the intense cerebral congestion of dystocia may cause a rupture of the very fragile vessels of the pia mater. Hemorrhage is, in fact, the most frequent lesion found in infants still born, or dying soon after birth.

Dr. Herbert Spencer made a critical examination of 130 in-

infants dying in the first few hours of life. In 65 per cent. he found injuries to the brain, congestion and hemorrhages. He considers the forceps as the most frequent agent in producing hemorrhage. next, foot and breech presentations, softness of the skull and relaxation of sutures. He also discovered in many cases hemorrhages into the liver and suprarenal capsules, and pulmonary apoplexies. It is probable that a large number of children returned as dying of immaturity, insufficient vitality, asphyxia and convulsions succumbed to intracranial hemorrhage.

It must be remembered that while cerebral hemorrhage is usually associated with dystocia, it may occur in small children who are easily born. There may be no sign of cerebral irritation. The infant may die suddenly without symptoms, or may show irregular respiration and slight cyanosis, simulating asphyxia or atelectasis. Mistaking the condition for an imperfect expansion of the lungs, the physician may wonder why his well-directed efforts at resuscitation are unsuccessful. Generally, meningeal hemorrhage is the result of malpresentations and difficult labor. There is a series of convulsions, irregular breathing, cyanosis, opisthotonus, rigidity, quivering and automatic movements. The majority of cases die before the fourth day. The convulsions may subside and the child later suffer from epilepsy or paralysis. The slight hemorrhage may give rise to no immediate symptoms. Many cases of idiocy, dull mentality, epilepsy, hemiplegia and diplegia, trace their origin to intracranial injuries of parturition.

The diagnosis of meningeal hemorrhage or internal hematoma of the meninges may be made with great accuracy, with the history of an external hematoma, difficult labor and recurring convulsions. The treatment of intracranial hemorrhage is almost hopeless, even if the convulsions are relieved, the residual disabilities are not lessened.

CASES ILLUSTRATING CLINICAL HISTORY OF MENINGEAL HEMORRHAGES.

The following is the history of a case that I think would be diagnosed as *feeble vitality, congenital debility or heart disease*. Baby born after a normal labor lasting two hours, head presentation, died aged six hours, growing blue in the face, no convulsions.

Autopsy.—Plump baby, thymus large, lungs expanded, ecchymoses in the pleuræ; stomach and intestines contain large quantities of viscid mucus; *brain*: a film of blood over motor

areas of cortex, large clot at base of brain about cerebellum and medulla, small clot in ventricles. Here the hemorrhage was due to the moulding of the head in an easy labor.

Meningeal Hemorrhage Causing Convulsions.—Called at 9 P.M. to see a child born sixty-three hours before; mother primipara, twin birth, the fetus undeveloped, $\frac{3}{12}$ gestation, 2 placentas, 1 shrivelled small; 1 normal. Second stage lasted seventeen hours, presentation right occipito-posterior; instruments used; easy delivery; cord tight about neck. Child slightly asphyxiated; an extensive edemata of neck, present for thirty-six hours; a hematoma size of hen's egg on left occipital bone, slight forceps abrasion on left trapezius; defecation and urination normal, umbilicus normal; heart sounds good, strong; respirations called for. Languor, cyanosis and convulsions. First convulsion when fifty hours old, after feeding, one in late morning, one in afternoon. 8:30 P.M., a series of hard convulsions; rigidity and twitching of extremities, some of the convulsions were caused by swallowing, showing exaggerated pharyngeal reflex. Child blue and feeble; evening temperature 103° F.; advised cold to the head and chloral. The child had no more convulsions and died at 11:30 P.M.

Next is the history of a case, with *long continued convulsions, partial recovery, development of epilepsy, death in status epilepticus*. Called to see child seventeenth day of life for frequent convulsions. History: born after normal labor, easy head presentation, non-instrumental; second day of life child began to have convulsions, would become cyanotic, breathe rapidly, and have twitching of extremities. In the intervals of relaxation baby apathetic and would not nurse; fed breast milk. Defecation in order; temperature in axilla for last ten days 102° F. Child had grown weaker and thinner, five to fifteen convulsions a day, generally in afternoon and night. Examination on the seventeenth day: child very thin; temperature 97.6° F.; respiration 50; heart sounds weak, 120; right parietal large hematoma; child grew cyanotic when handled; umbilicus unexcoriated; passed a foul mucous stool. Later history: the convulsive attacks gradually grew less frequent; in later infancy ceased for a month; then recurred at frequent intervals; child was fat with a type of flaccid palsy; blind from optic atrophy; child died aged two years in status epilepticus.

I wish also to report a *case of difficult delivery, child born asphyxiated, completely resuscitated; there were no convulsions; no*

rigidity or loss of power. This child thrived, and, until it was eighteen months old, there was no evidence of intracranial injury. At this age it was noticed that the child moved awkwardly and could not walk; signs of spastic paralysis developed, and now, at the age of four years, the patient is the victim of spastic diplegia, Little's disease. There are exaggerated reflexes, stiffness, and incoordination in the upper and lower extremities, strabismus and dull mentality. The cause of the child's disability was a meningeal hemorrhage of the cortex, over both motor areas, with secondary degeneration of the anterior and lateral pyramidal tracts of the spinal cord.

ASPHYXIA AND ATELECTASIS PULMONUM.

Seventeen deaths were recorded from asphyxia, atelectasis and compression of the cord, 3.6 per cent. of total mortality. Asphyxia and cerebral hemorrhages are usually caused by the same conditions of dystocia and have in common the symptoms of prostration, cyanosis and irregular breathing. Asphyxia is ordinarily completely relieved by artificial respiration, but a number of cases are seen, where treatment is only able to effect a partial expansion of the lungs; the infant lives for days and weeks with one-third to one-fourth of its lungs in working order. It is feeble, has a subnormal temperature, will not cry or nurse, breathes rapidly, irregularly; suffers from frequent cyanotic attacks, in one of which it may die.

In congenital atelectasis there may be an easy labor, no asphyxia, but from inherent weakness or immaturity of the respiratory muscles and nerve centres the baby will not expand its lungs. It leads a cold, cyanotic vegetative existence; refuses food and is apt to die suddenly in an attack of cyanosis. In both asphyxiated infants and those suffering from atelectasis there is feeble or absent breath-sounds at the bases of the lungs; underweight children or those born asphyxiated should be occasionally auscultated and closely watched. With lividity, rapid or irregular breathing, oxygen, mustard baths, artificial respiration, forced feeding and hypodermic stimulation should be used with vigilance. A large number of these cases may be saved.

Both asphyxia and atelectasis are fertile causes of bronchopneumonia.

SEPSIS.

A large proportion of fatalities in newborn infants are from

sepsis. The avenues of infection are numerous, and include the eye, ear, nose, mouth, skin, digestive and respiratory tracts, and umbilicus. The germ may be any one of the pathogenic bacteria. The patient's resistance to disease is very slight, probably owing to deficient leukocytosis and defective development of the lymphatic apparatus. When puerperal fever prevailed young infants were frequently infected by their mother's milk. In Prague, after the introduction of antiseptic methods in the hospital, the mortality of the newly born sunk from 30 per cent. to 5 per cent., and the number of feverish children from 45 per cent. to 11.3 per cent. Indeed, the conditions are often more favorable for infant life in a fine hospital than in an ordinary dwelling. According to Birsh-Hirschfeld prenatal infection, save for lues, is almost impossible. The healthy placenta is a perfect filter for germs. It is only when the placenta is diseased or saturated with bacteria that infection is possible. It is favored by partial detachment of the placenta or frequent hemorrhages. The greatest source of danger is the amniotic fluid after the bag of waters is prematurely broken. The amniotic fluid is polluted by the examining finger or by an ascending infection. The fluid is aspirated into the lungs or swallowed and infection may become general or localized, in the respiratory or gastroenteric tract. The germ is generally the colon bacillus. A period of incubation may occur, and several hours or a day or two may elapse before symptoms appear.

Whatever be the microbe or portal of invasion, the infection soon becomes general, and nearly every autopsy will reveal a pneumonia. To discuss the matter in detail would be to allude to symptoms arising from lesions of every organ. The general clinical picture is, fever, cyanosis, rapid breathing, convulsions, vomiting and diarrhea. (Mother usually well, free from fever.) It must be remembered that in a prematurely born child, weighing from 1,500 to 2,000 grams, a virulent infection may exist without a rise in temperature. Most cases of sudden death may be explained in this way; there is no ability to defend the organism against toxins.

It is usually stated that the umbilicus is the vulnerable point. I doubt if many infant deaths are due to this cause. Three deaths of 471 are returned from lesions of the navel at the fourth, nineteenth and twenty-second day; it is possible the condition is more frequent, owing to the fact that physicians are slow to acknowledge that a preventable disease has occurred in their practice.

Respiratory inflammations are excessively common in the first month. The disease may start from purulent coryza, an imperfectly expanded lung or a pulmonary apoplexy. The infection may come from foul atmosphere, unclean bedding or mattress, as seen in the Heidelberg epidemic, where an epidemic of 8 cases arose from staphylococci in straw beds, but it is more frequently caused during parturition, by the aspiration of amniotic fluid, contaminated by the colon bacillus, streptococcus or staphylococcus. The number of deaths reported, 40, 8.5 per cent., does not accurately state the frequency of the disease, as a majority of infants dying in the first month have a bronchopneumonia. Pneumonia is diagnosed principally by objective signs, fever, cyanosis and rapid breathing. There are no characteristic physical signs in the chest and the treatment is hydrotherapy, counter irritation and stimulation. Delestre states that the majority of autopsies in prematurely born children show a hemorrhagic bronchopneumonia, causing almost an absolute obstruction in the bronchial tubes.

Richter, of Vienna, made 1,525 autopsies upon children dying suddenly in the first month. He found the most frequent cause of death was a capillary bronchitis, which killed by asphyxia. The bronchitis was occasionally associated with bronchopneumonia or intestinal catarrh. As to other causes of sudden death, Epstein said the diagnosis of hypertrophy of the thymus was a term used to mask our ignorance of the real cause of death.

GASTROENTERIC INFECTIONS AT BIRTH.

Gastroenteric infections at birth are occasionally seen and receive small mention in text-books. In Buffalo, in the year ending December 1, 1902, there were among infants under one month, thirty deaths from acute gastroenteric disease, and forty from marasmus and inanition, making 16 per cent. of the total mortality under four weeks.

With some children a congenitally-imperfect digestion exists, the digestive ferments are weak, the congested gastroenteric tract is coated with mucus, and autointoxication or infection readily occur. Vomiting, diarrhea and colic are easily excited, and may be due to mere dyspepsia, to grave gastrointestinal infection or autointoxication, or to general sepsis. Delestre describes a chronic infection causing infantile atrophy or athrepsia. Dyspepsia may be caused by colostrum breast milk, or by injudicious food mixtures.

Severe gastroenteric infection is in my experience more frequent and fatal in newborn babies than lesions of the umbilical wound or vessels. The germ may enter the digestive tract in various ways, on the *accoucheur*, or nurse's finger in the toilet of the mouth, by breast milk or food-prescription. It may be sucked from the breasts of the mother or may be introduced by the swallowing of polluted amniotic fluid or vaginal secretion during the infant's sojourn in the parturient canal. Amniotic fluid is often present in the stomach of the newborn babies, and is, of course, not always pathogenic. Karlinski discovered pus cocci in the milk of a sick mother and in the food and intestinal contents of her baby, dead of septicemia. Before the days of aseptic midwifery, a close association was observed between infantile diarrhea and child-bed fever. The mother was infected during or after parturition and the baby swallowed bacteria in the breast milk. Nowadays, the mother remains well, while between 9 per cent. and 10 per cent. of all children born die in their first month of life.

Between dyspepsia and gastroenteric sepsis, the dividing line is vague, often depending on the dose and virulence of the poison and the resistance of the individual. Microbes habitually inoffensive may become virulently pathogenic.

In Grosz's statistics of the morbidity of young infants, of 447 newly born hospital children, 254 or 57 per cent., showed food vomiting or dyspeptic diarrheas. He says the rapidly fatal choleriform diarrheas, formerly seen, now seldom occur.

Grosz's diagnosis of dyspepsia was based on an illness of ten days with vomiting and frequent mucous stools. He describes three grades of dyspepsia: (1) Several yellowish green stools daily; (2) same symptoms with vomiting; (3) stools dark, green color, frequent vomiting and a rapid loss in weight.

The 5 cases of diarrheal disease in newborn children which I report are of a much graver character than Grosz's subdivisions of dyspepsia. They are best described as gastrointestinal sepsis or ileocolitis. The babies were of good weight and sound, vigorous physique. They were evidently poisoned during or soon after birth by some virulent germ which, besides exciting acute gastroenteric irritation, profoundly depressed the respiratory and cardiac centres. The three survivors showed no signs of digestive or constitutional weakness in later infancy. As soon as the poison had been eliminated or had lost its virulency the children thrived with their mother's milk.

First Case.—This is possibly one of *severe dyspeptic diarrhea*, yet the baby was failing so rapidly in the hot month of August that the illness was diagnosed as an ileocolitis. The confinement was normal and the umbilical wound healed quickly. The mother had plenty of milk and attempted to nurse her baby boy; a diarrhea quickly ensued with six to eight green, mucous stools a day. Temperature, 100° - 103° F. The breast milk was analyzed and proved to be a colostrum milk, highly albuminous. In spite of treatment and a change in diet to cereal-gruels and whey the diarrhea continued and increased in severity for twelve days. At the fourteenth day of life the frequency of the stools, the child's prostration and emaciation (one-fifth of the weight, twenty ounces, had been lost) made the patient's condition somewhat alarming. A wet-nurse was procured with a gradual amelioration of all symptoms. Later, the mother nursed her child, and at the age of four months it weighed twenty pounds.

Second Case.—The patient was the third child, born October 15th; two other children died shortly after birth. The baby was born with the cord about the neck; the baby was partly asphyxiated and well resuscitated. Immediately after its birth the child seemed feverish, apathetic, and would not nurse its mother or a wet-nurse. For the next three days the baby appeared very ill; October 16th, the temperature was 104° F.; on October 17th it was 102° F.; on October 18th, 102° F. It refused the breast, was fed on diluted breast milk, and had two to three foul, mucous stools daily. I first saw the case October 19th, the fifth day of life; the baby was large, well developed, but languid and exhausted. Temperature, 100° F.; pulse, 140. I removed the cord; the umbilical wound was healthy. There was a livid erythema of the mouth and numerous stools of mucus and food débris.

October 20th, same condition of prostration and diarrhea.

October 21st, the patient grew rapidly worse; temperature 101.5° F.; respiration, 84; pulse, 140. Persistent vomiting of food and bloody mucus, frequent stools of mucus and blood; the baby was almost continually rigid, with opisthotonus and carpopedal spasms.

October 22d-23d, the same symptoms of tonic spasms of the trunk and extremities with frequent vomiting and stools of bloody mucus.

October 24th, the child died at 9:30 A.M.

Autopsy.—The body was much discolored; the lungs were

congested at the bases; the right ventricle was distended, esophagus congested; stomach dilated and congested; entire intestinal tract congested and coated with bloody mucus; umbilical vessels healthy; brain not examined.

The duration of the malady was ten days; the patient seemed ill from the moment of birth. In its sojourn (asphyxiated condition) in the parturient canal the baby in efforts at breathing may have swallowed polluted amniotic fluid or vaginal secretion, producing a fatal gastroenteric infection. The nervous symptoms, opisthotonus and carpopedal spasms, were probably the result of general sepsis.

Third Case.—Baby born October 8, 1901. Normal labor, no asphyxia, weight about eight pounds; child nursed on the second day; the breast milk was noticed to be unusually thick and creamy. The baby thrived until the fourth day of life; then grew somnolent and would not nurse; the stools became frequent, seven to eight daily, were black, foul-smelling and contained strings of mucus. I saw the patient the sixth day of life. The baby looked very badly, temperature 102°F.; heart, weak and rapid; umbilicus, healthy; a fragment of mummified cord sprinkled with boric acid was hanging to the navel.

From October 14th-19th, the symptoms were, numerous fetid, mucous stools, fever and increasing prostration. The baby was sparingly fed on diluted breast milk, whey and gruels. It was given calomel, intestinal irrigations, strychnia, whiskey and artificial serum.

October 20th, the patient grew rapidly worse; the rapid breathing suggested a pneumonia; the diarrhea continued with frequent attacks of cyanosis. Death occurred October 21st. No autopsy was permitted. The illness lasted ten days. The gastroenteric tract was probably infected through the breast milk, which was thick and slimy.

Fourth Case.—The mother was a primipara of thirty. The labor was long and difficult, lasting fifty-seven hours on account of rigidity of the cervix. Opium and hyoscyamus was given in the earlier stages of parturition. Head presentation, delivery was effected by forceps under chloroform narcosis. The *accoucheur* introduced his fingers into the rectum to assist delivery, rinsed them off in sublimate solution, and wiped out the baby's mouth with sterile gauze. The child weighed eight and three-quarter pounds, was at once put to the breast, although the secretion of

milk was not established until the fifth day. When twenty-four hours old the baby began to vomit and pass black-liquid stools, containing mucus and blood.

April 10th.—I first saw the child on the third day of life; it looked very ill, had cried for hours in a hoarse, gasping way; there was no cyanosis; temperature 103°F. ; heart so rapid and feeble that the child seemed moribund. With stimulation and intestinal irrigation the child revived somewhat, yet for four days it was very feeble and required heroic doses of whiskey, strychnia and hypodermoclysis. The temperature ranged from 102° - 106°F. ; respiration, 50-60. There was occasional vomiting and numerous stools, ten to twelve daily, of bloody mucus and food débris; the food was diluted breast milk from a wet-nurse.

After April 13th the baby slowly improved, and the fever gradually subsided. The acute symptoms lasted for six days. Prostration and imperfect digestion continued for three weeks. The mother nursed the child when two weeks old; the baby is now in superb condition.

Infection in this case may have occurred from swallowing amniotic fluid, or more probably from the toilet of the mouth through the finger of the *accoucheur* which had previously been introduced into the mother's rectum.

Fifth Case.—The mother a primipara of thirty-three.

Labor easy, noninstrumental. Baby born September 26th; weight, seven and one-half pounds; the baby was put to the breast and had normal meconium stools for two days. The third day the child showed fever 102°F. ; the respiration became rapid and irregular, 80; a serious diarrhea appeared, 12 stools containing blood and mucus in twenty-four hours. I saw the child at 5 P.M.; it had been stimulated with strychnia and atropia. Temperature, 99.5°F. ; pulse, 120; color, good. The malady had strangely affected the rhythm of respiration. The breathing was rapid, irregular and superficial, only an occasional inspiration would inflate the lower lobes; umbilicus, healthy. On the fourth day the temperature at 2:30 A.M. was 101°F. ; there were twelve bloody, mucous stools in twenty-four hours; at 9 A.M., the child sank into desperate collapse with marked respiratory failure; after two hours' work with oxygen and hypodermic stimulation, the child improved and at noon was in fairly good condition.

During the next three days, October 1st, 2d and 3d, there was no fever; the respiration was irregular and superficial; there were

five to eight black, bloody, mucous stools a day. The baby was so weak that it was fed with a medicine dropper.

On October 4th, the mother began to nurse the baby; the respiration gradually grew deeper and more regular. Mucus and undigested food debris were present in the stools for two weeks; the loss in weight during the first week amounted to only twelve ounces. The baby is six months old, now in good health. The cause of the infection was impossible to discover.

This little series of cases of diarrheal disease in newborn children was seen in consultation practise, among well-to-do families, with good hygienic surroundings. The mode of infection is obscure, but I have a most positive impression that in 2 cases (1 and 3) the mother's milk was the cause of illness and that in 1 case (2) the child was infected in the parturient canal, probably by swallowing amniotic fluid containing the colon bacillus. All of the mothers attempted to nurse their children, and no other food than breast milk was given until fever, vomiting and diarrhea appeared. Colostrum or infected breast milk may excite a severe or fatal diarrhea. If the mother's milk be suspected, nursing should be stopped at once. It should be remembered that while colostrum milk may temporarily be very irritating, that the excess of albuminoid is apt to disappear in a few days, when nursing may be resumed.

The prevention of gastroenteric disease in the newborn is effected by vigorous asepsis, and especially by avoiding unnecessary toilet of the mouth with unsterilized fingers or gauze, as these infants are very prone to infections of the lungs and digestive tracts.

If the physician wishes to succeed in saving a newborn child who shows signs of grave infection, he must keep it under close personal observation. At this early age attacks of sudden cardiac and respiratory failure are frequent and unexpected and require prompt hypodermic stimulation with strychnia, atropia and normal salt solution. For food, diluted breast milk should be given. Other adjuvants of treatment are: hydrotherapy, laxatives and gastric and intestinal lavage.

The diseases of the newborn are little studied or understood. The high mortality of the first month could be much lessened if the unnecessary use of the forceps were avoided and surgical cleanliness were observed about the child as well as the mother.

DISTURBANCES OF RESPIRATION IN THE NEWBORN.*

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The form of respiratory disturbance which first confronts the practitioner in his attentions to the newborn is asphyxia. Closely associated with this is congenital atelectasis. These two conditions may be included under the general heading of respiratory failure. As subjects for clinical study, outside of their obstetrical significance, they are unimportant, while atelectasis, associated with other lesions and in later newborn existence, is not necessarily marked by respiratory failure alone.

It is the suspension of respiration arising from special causes which may claim our attention, although the enumeration of these causes is not the object of this paper. It is rather that the study of individual symptoms may emphasize the relationship of the symptoms themselves to the underlying condition.

As to the special causes of failure of respiration, deficient action of the abdominal muscles is frequently observed, especially in asphyxia, but it has a special significance in premature infants in that it limits respiration and interferes with the supply of oxygen, reducing to this extent the infant's nutrition. Failure of respiration from traumatic causes has been observed, the result of pressure in intracranial hemorrhage and the result of paralysis of the abdominal muscles due to spinal injury during birth. (A. H. Davisson, *Philadelphia Medical Journal*, Vol. ii., No. 8.)

Irving M. Snow (Transactions of the American Pediatric Society, Vol. xiii., p. 123), recites two instances of recurring respiratory failure, apparently of bulbar origin. He advances the opinion that the condition is dependent upon a transitory and powerful influence upon the medulla, the result of infection of some sort affecting possibly the inhibitory centres. The bulbar theory of the malady presents itself, in his opinion, on account of the existence of morbidly active pharyngeal reflexes, which existed in both cases. Two similar cases which he recites (1) that of Dr. George Keith, the *Lancet*, November 24, 1900; (2) that

* Read at the meeting of the American Pediatric Society, Washington, D. C., May 12, 13 and 14, 1903.

of Dr. Westcott, ARCHIVES OF PEDIATRICS, October, 1897, point to the possibility of an infectious influence exerted upon the nervous system. An accidental surgical infection probably existed in the first of these cases, that of Dr. Keith, in which attacks of failure of respiration, more or less prolonged and associated with cyanosis and rise in temperature, came on within a few hours after circumcision. In the second case, that of Dr. Westcott, the child, slightly beyond the newborn period, was seized in the course of influenza with an attack of superficial breathing culminating in absolute stopping in respiration and associated with excitability of pharyngeal reflex similar to that observed in Dr. Snow's case. In this case, therefore, the infectious character of the symptoms was also undoubted.

In contradistinction to this class of cases are those instances of passing respiratory failure in the newborn due to toxic influences, the result of alimentary disturbances. The evidences of reflex irritation are more or less pronounced in degree, shown for instances in some cases by prolonged attacks of drowsiness, which are apt to overcome even breast-fed infants and which are promptly relieved by purgation; or, in other instances, by sudden nausea, which shows itself in the form of syncope with respiratory failure.

It is not difficult to find in every-day practice instances of the latter condition. The following is typical:

Infant of Mrs. B. A well-nourished, vigorous child showing early restlessness, apparently from hunger, on the fifth day while on the nurse's lap became suddenly pale and ceased to breathe. The attack lasted for the fraction of a minute and was accompanied by slight cyanosis and coldness of the extremities. There was no spasm. The infant was revived by a warm bath. A similar attack occurred on the following day. The temperature had risen on the third day to $101\frac{1}{5}^{\circ}\text{F.}$, returning to normal on the eighth day. The child was put upon minute doses of calomel and the condition was relieved. Improper nourishment was no doubt the cause of the disturbance. A weak solution of condensed milk had been given to satisfy the child up to the beginning of lactation, the latter having been delayed beyond the usual period. From the time at which the discharge of meconium had ceased until lactation the stools had been unduly frequent and greenish in character.

A rise in temperature associated with the symptoms just

described may show itself in advance of the digestive disturbance; and, in some instances, may be mistaken for the fever of inanition described by Holt. Indeed, it is not infrequent for an apparently healthy infant, fed at the breast, to undergo in the first few days, before lactation is fully established, digestive disturbance which is shown in mild pyrexia, the course of such a feverish attack ending in colic and diarrhea. This is especially the case in infants of primiparæ.

Instances of acetanilid poisoning from application to the umbilical wound and external surface reported by Snow (Transactions of the American Pediatric Society, Vol. ix., p. 39) may be included among the causes of respiratory failure, although the most pronounced evidence of poisoning in such cases lies in the cyanosis, the respiratory failure being merely an accompaniment of collapse.

DYSPNEA.—This may arise from certain congenital conditions. Cardiac malformations come first in order. These are accompanied by a deviation of the blood current from its entrance to the pulmonary circulation. For this reason the condition is marked by cyanosis. Although the latter is always present the degree of dyspnea may vary. The dyspnea is constant in character, especially if the malformation be extreme; that is, other than the persistence of late fetal conditions, such as patulous foramen or ductus arteriosus.

The *dyspnea of pneumonia* is marked by the absence of paroxysmal attacks. Frequently the breathing is irregular and takes on the character of Cheyne-Stokes respiration. The want of oxygen, added to the toxemia, rapidly induces somnolence and apathy. In congenital atelectasis the cyanosis is marked from the beginning, partly for the reason that the stagnant pulmonary circulation interferes with the closure of the foramen ovale, the systemic circulation being charged with venous blood which finds its way directly into the left heart (Henoch). The absence of fever and râles, together with the presence of dullness over the area of collapse, if the latter is extensive, are distinguishing features in atelectasis. In premature and weakly children with pneumonia fever may be absent. The physical signs may also be deficient, so that the differential diagnosis between pneumonia and atelectasis may be impossible.

Stenotic dyspnea in the newborn presents an interesting field of study. Congenital stenosis of the larynx may occur in the

form of a contraction of the aryepiglottic folds (O'Dwyer, Transactions of the American Pediatric Society, Vol. ix., p. 180). The rima glottidis is not involved, so that the voice is unaltered. Spasmodic respiration is the prevailing symptom. Accepting the fact that simple spasm may occur it is yet probable that the labored crowing inspiration sometimes observed may, in certain instances, be due to such malformation. Spasm may be an accompaniment of a form of membranous inflammation of the throat due to streptococcus infection, observed by J. Lewis Smith and described by Holt (*Diseases of Infancy and Childhood*, second edition, 1902).

Dyspnea due to enlargement of the thymus gland.—The term "enlargement" in this connection is indefinite; in the newborn there exists a variability in the size of the gland, true hypertrophy being found usually in the latter months and existing as a congenital condition only in cachectic infants in whom a hyperplasia of certain lymphatic tissues, markedly the bronchial glands, is also found (Grancher, Marfan et Comby, *Mal de l'Enf.*, Paris, 1897). The attacks of dyspnea in such infants are purely convulsive and are usually not due to direct pressure. Reflex irritation due to functional enlargement of the gland is illustrated in a case reported by Kurzem (*Arch. f. Kinderhklnde.*, Vol. xxvi., p. 277) in which a dyspneic attack was evidently of thymic origin, as he was able to find by clinical examination a functional enlargement of the gland. The symptoms disappeared entirely after the use of ice applications. It should be recalled that the apnea which accompanies enlargement of the thymus may show itself with great suddenness and may terminate fatally. For this reason in an instance of sudden death in the newborn the possibility of enlargement of the gland should be entertained as bearing upon the cause of death, inasmuch as the respiratory disturbance may have been of such short duration and of such sudden development as to have escaped notice. Beyond this the thymic origin of early dyspnea is not of importance.

Before dismissing the subject of dyspnea arising from disturbances in the cardio pulmonic system the differentiation of broncho pulmonary hemorrhage from other thoracic conditions may be properly considered. Pulmonary extravasation has, together with pneumonia and atelectasis (the two pathological conditions more frequently met with), the common etiological factor of depressed vitality, which belongs to premature and cachectic infants; according to Demelin (Grancher, Marfan et Comby, *Traité*

des Mal. de l'Enf., Paris, 1897) the initial weight of infants under his observation suffering from pulmonary apoplexy was from 1,800 to 2,200 grams. Dullness and a diminution in the vesicular murmur may be common to all three affections; in pulmonary hemorrhage, on the other hand, the dyspnea may be replaced by feeble respiration, with but only occasional paroxysms of difficult breathing. The cyanosis in this condition is likely to be more pronounced. The temperature is, as a rule, subnormal. Râles are usually present. The actual observance of extravasation from the mouth is conclusive. The history of obstetrical trauma or the possibility of an associated infection may have a bearing upon the etiology of hemorrhage. Cough as a symptom, owing to the absence of bronchitis, is absent. Subcutaneous extravasations are frequently seen as an accompaniment.

Dyspeptic dyspnea.—Where the signs of intrathoracic trouble are wanting the symptoms may point to alimentary disturbance. The dyspnea is toxic in origin and has nothing to do with intra-abdominal pressure. The dyspnea is usually not the primary manifestation, in most instances, of indigestion; green stools, scanty urination, fever and anorexia are likely to precede the attack. The difficulty in breathing is accompanied by cyanosis and rapidity in the pulse rate with diminution in volume. Emaciation in these cases usually precedes the appearance of the dyspneic attacks; and, taken with the intestinal irritation, point to alimentary disturbances as the underlying condition. It would hardly be in accordance with the description of Henoch to classify these cases in the newborn under the heading of "dyspeptic asthma." The latter condition is one in which the asthmatic attacks appear as the initial and primary symptom of arrested digestion. In their typical form they appear in older children.

Diaphragmatic hernia offers a complexity of thoracic and abdominal symptoms among which dyspnea predominates. The difficulties in diagnosis in this malformation are illustrated in a case described by Booker (*Transactions of the American Pediatric Society*, Vol. ix., p. 100). The rarity of this condition on the one hand, and the frequency with which intestinal disturbance is met with, on the other, make it probable that few observers have had the opportunity of confusing the symptoms. In going over the interesting report of Dr. Booker's case the most striking point of interest was the accession, after periods of comparative comfort, of distressing dyspnea, which was accompanied by pain and fol-

lowed by collapse. In this case the difficulty in breathing was at first attributed to the pressure of gas in the stomach and bowels with the probable absorption of injurious substances from the intestine. The following quotation describes the thoracic condition: "The respirations were sixty to eighty to the minute during the attack and there was recession of the soft parts of the chest with inspiration. Vesicular breathing could be heard over the whole of the chest but it was much more feeble than normal. The heart sounds were greatly obscured by the frequent and violent movements of the chest, but it could be safely determined that no murmur existed. The abdomen was soft and not distended, although there was a considerable escape of gas from the intestines. Pulse 130 to 160. Percussion resonance over the chest was accentuated and the tympanitic sound of the abdomen was transmitted high in the thorax."

Dr. Booker writes that he has been able to find but one case in which the diagnosis was made during life and confirmed at the autopsy. This was an instance observed by Ahlfeld, in a child in the second period of childhood, who became habitually cyanotic from the most trivial cause, as, for instance, the shock of being put in the bath. The heart could be located in the right axilla, the left thoracic region giving an intestinal note on percussion.

Rapid respiration.—Rapidly in respiration, in contradistinction to dyspnea, is commonly met with. It may be paroxysmal and transient or continuous. Dyspeptic and febrile conditions may be the underlying causes. It may be a symptom of the common pulmonary affections, as bronchitis and pneumonia. In systemic septic infection rapidity in respiration is one of the accompaniments of fever, which is always present. As a symptom, however, it may be out of all proportion in value to the other symptoms. Yet it may be the first indication of disturbance. The symptom may be misleading relative to thoracic conditions. It requires, therefore, careful clinical investigation to place it in its proper position. The following case is reported in order to illustrate the linking of respiratory disturbance, as a symptom, to septic intoxication:

An infant, born August, 1902, showed on the evening of the third day a sudden rise in temperature amounting to 103°F. The fever had been preceded by restlessness and was accompanied by rapidity in respiration. The latter was from 60 to 80. The breathing was abdominal in character, and exceedingly shallow. Auscul-

tation and percussion gave no evidence of intrathoracic trouble. There was turgescence of the veins of the head and the venules over the chest and abdomen with general mottling of the skin. Lactation had been established early and the child had begun to nurse regularly. There had been slight icterus but no alimentary disturbance. The cord was well mummified at this date and the umbilical fold showed no irritation. The rapidity in respiration subsided with the fall in temperature, which occurred on the fifth day. On the sixth day the beginning of a virulent ophthalmia was noticed.

The treatment followed was the use of the ice-cap and the administration of the fifth of a grain of calomel divided into six doses.

The mother, whose condition, from the following description, bore directly upon the ophthalmia in the newborn, had shown anemia and loss of appetite during the last days of her pregnancy. She continued, during the early days of her puerperium, to show evidences of septic intoxication, which, however, amounted only to slight nervous agitation and anorexia. There was no rise in temperature beyond a slight elevation from engorgement of the breasts. On the tenth day she suffered from a pronounced rigor followed by fever. In irrigating the uterine cavity it was discovered to be the seat of a purulent endometritis. The patient developed a pyemia with irregular exacerbations of fever and fresh metastatic foci. Finally it became necessary to excise the Fallopian tubes, which were the seat of an acute purulent salpingitis. The patient recovered after a protracted illness. The blenorrrhea in the child subsided in the course of six weeks.

It would be more striking than exact to connect the respiratory disturbance in this case with the beginning ophthalmia. The fact is in reality that the septic intoxication in the child was probably the result of a mixed infection, just as the septicopyemic condition in the mother was of such origin, since the virus of the gonococcus, as is well known, is prone to set up localized suppurative foci in contradistinction to general septic intoxication (Fishl, *Sammlung Klin. Vortrage*, 1897-8, No. 220). Blenorrrhea in itself would, therefore, hardly account for the toxic disturbance which gave rise to respiratory changes observed in conjunction with other symptoms. The source of the septic infection could scarcely be considered of prenatal origin, that is, as a direct maternal infection in utero, as septic infection in the newborn of

this origin is accompanied by marked blood dyscrasia and degenerative changes which rapidly end fatally (Miller, *Jahrb. f. Kindhlke.*, 1888, No. 28, p. 155).

The source of the infection must, therefore, have been obstetric rather than congenital, and may have arisen from entrance of the infecting elements through the mouth or umbilical fold, or by an invasion of the bronchial system. The amniotic sac had been intact until the completion of the second stage of labor, so that the opportunity for invasion by the strepto- or staphylococci, present in all probability in the genitourinary tract before the birth of the child, occurred during the passage of the birth canal after rupture of the membranes.

The penetration of the child's alimentary tract by bacteria in the milk during the early stage of the puerperium is hardly a likely explanation of the child's condition.

DISCUSSION.

DR. SAUNDERS.—One cause of disturbance in respiration which exists in our cities is gas. The houses are now mostly heated by steam radiators, supplemented by the gas log. The products of combustion are thrown off into the room. One case which I had was that of a newborn child with acquired atelectasis, which required my presence, or that of my assistant, for twenty-four hours. This is a real menace to the safety of newborn children. In pure apnea there is nothing, I believe, so efficacious as flagellation. I usually tell the attendant to take a little rubber band and flip the soles of the feet whenever the child begins to get tired of breathing. Of course, I use medicinal means also. In cases of apnea where there is a necessity of using an aspirating syringe, I find they can be dealt with most effectually by causing the child to gag by putting an aseptic finger into the pharynx. You will be astonished sometimes to find that, in a child with interrupted breathing, who is getting worse and worse, with a number of moist râles in both sides of the lungs, the lungs clear up and regular breathing is established.

DR. HAMILL.—I have been very much interested in this paper for two reasons. First, because I have known for a long time of the valuable work which Dr. Wilson has been doing in the study of the diseases of the newborn, and, in the second place, on account of the close relationship of this subject to that of my paper of yesterday.

In the large majority of cases of infection of the newborn, some degree of respiratory embarrassment exists; indeed, it is

such a common manifestation in these cases that its presence always suggests to me the likelihood of an infectious condition, and I believe that, in most instances, it is an indication of an infection or an intoxication. Many cases of so-called inanition fever, referred to by Dr. Wilson, occur in the course of epidemics of the infectious conditions of the newborn. I have been inclined to consider these instances of mild infection.

In Dr. Snow's paper, he stated that in one of the maternity hospitals in Prague, before the days of rigid antisepsis, 44 per cent. of all infants born showed some elevation of temperature during the first weeks of life. After the introduction of antiseptic methods, this figure dropped to 11 per cent. This is quite suggestive, and confirms one in the belief that these fevers are infectious in character.

DR. WILSON.—Since writing this paper I have had a case of pneumonia with collapse of the lung resulting from infection during birth. The child was injured by the application of forceps, the region at the junction of the neck and shoulder on the right side was the seat of abrasion; suppuration and ulceration, resulting in a small abscess of the subintegumentary tissues, appeared on the eighth day, with a slight rise of temperature. As soon as the abscess was opened the child recovered. Three or four days after that he lost his appetite and again had a slight fever with collapse of the lower lobe of the right lung, due probably to the depressing effects of the early septic intoxication.

Bacillus of Epidemic Dysentery.—In a paper read before the Academy of Medicine concerning this germ, Chantemesse (*La Sem. Med.*, June 11, 1902) claims some of the honors arising from its discovery and description, as in 1888 he, in conjunction with Vidal, had reported to the Academy a microorganism which they had isolated from the stools of individuals dying of acute dysentery. It was present in pure culture in the mesenteric glands of such individuals, but was never found in the stools of individuals who had never had dysentery. He objects to Shiga having the bacillus named for him, as his own work antedated Shiga's at least ten years. At the time, however, their discovery was roundly criticised, everyone believing they had described an ordinary colon bacillus, but since then, many others, in particular Kruse, Celli, Shiga, and Flexner, have reported the same organism as the cause of the disease. He recognizes but two types of dysentery, the amebic and the bacillary; the former is chiefly sporadic and chronic, ending fatally either through liver abscess or by exhaustion. Bacillary dysentery is epidemic (occasionally sporadic), infections may kill quickly or become chronic, producing ulcers of the large intestine. The blood of such patients agglutinates the bacillus of dysentery after several days.—*American Medicine.*

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THE PREVENTION OF TUBERCULOSIS AMONG CHILDREN.

Children may be infected with tuberculosis in several different ways. The disease may be directly inherited. A number of cases of tuberculosis in the fetus or in the newborn have been recorded, but all authorities are agreed that infection in that manner is so rare as to be practically negligible. Likewise the disease may be developed after direct infection of wounds or abrasions of the skin. Some of the cases of lupus may be accounted for in this way, but with us lupus is a very rare disease among children, and cutaneous infection plays an unimportant part in the production of tuberculosis.

The question of the danger to children in the milk or meat of tuberculous cattle is still under discussion. English authorities (Latham, *Edinburgh Medical Journal*, November, 1902) hold to the conviction that tuberculosis from this source is common, but they are now practically alone in that view. Koch's bold declaration of the complete independence of bovine and human tuberculosis is well known. While the investigations of the past two years have served to disprove the scientific correctness of that proposition, the belief is certainly gaining ground that infection from tuberculous milk or meat, if possible, is rare. On this point Biggs, in a recent article, remarks:—"While, therefore, holding in abeyance a final decision in regard to the danger to human beings from the prevalence of tuberculosis among cattle, it seems quite certain that the seriousness of the danger has been somewhat overestimated."

The real danger of tuberculous infection to children as to adults lies chiefly in the sputum of consumptive patients. We may admit the possibility of infection from the discharges of tuberculous lymph nodes or bones, but the bacilli are so rare in these discharges as to make them relatively harmless. Comby sums up the matter in the expression:—"Le crachat, c'est l'ennemi." In its earliest days the greatest source of peril to the infant is a tuberculous mother or nurse who, by kissing it or tasting its food, conveys the infection directly to the child's mouth. The same thing may, of course, be done by others, but it is less likely. Later when the child begins to creep or crawl about the floor the danger lurks especially in the dust or dirt of rooms infected by the expectoration of careless consumptives. The child may simply breathe in the infected dust or, after the manner of children, convey it by soiled hands to the mouth. Preisich and Schutz (*Zeitscr. f. Tuberculos. und Heilstatt.*, 1902), examining the dirt under the finger nails of sixty-six children under two years of age, found the tubercle bacillus in fourteen, although no selection of cases was made and the children, so far as was known, came from homes in which no case of consumption had occurred. The tuber-

cle bacillus so admitted usually finds lodgment in some part of the respiratory system and produces tuberculosis of the lungs or lymph nodes. In some instances the infectious material is swallowed and the disease develops in the intestines or peritoneum.

The special measures necessary to prevent the tuberculous infection of children are well presented in the words of Knopf:—"Not only should consumptives be religiously careful with their expectoration, but they should associate as little as possible with young children, and stay away from playrooms and playgrounds. We repeat that to kiss children on the mouth should never be allowed and the little ones should be taught never to kiss nor be kissed by strangers. They should be kissed by their own friends and relatives as little as possible and then only on the cheeks. The floor on which the child plays should be kept scrupulously clean. Carpets in such a place are an abomination; they only serve as dust and dirt collectors, and not infrequently harbor the germs of contagious diseases. The hands and nails of little children should be kept as clean as possible."

"Expectorating on playgrounds should be considered a grave offence and should be punished accordingly. Playgrounds should be kept clean, as free from dust as possible, and daily strewn with clean sand or gravel."

There is, however, another side to this question of the protection of children which we must not lose sight of. The power of resistance of the individual plays almost, if not quite, as great a part as exposure to the bacilli. The vigorous overcome the organisms, the weakly succumb to them. There will always be some tuberculous persons among the population and some tubercle bacilli free in the dust or air to do their deadly work. We must recognize these facts, and leave nothing undone to raise the resisting power of the children. In the individual case this means attention to the details of hygiene and to every illness, no matter how slight, but especially to the catarrhal inflammations of the respiratory and alimentary tracts that open direct avenues for infection. For children as a class sunlight and air hold the place

of first importance in this respect. Their action is twofold. In the direct sunlight tubercle bacilli die within a few hours and can survive but a few days in diffuse daylight (Koch), while at the same time sunshine and air are the most potent influences in raising the resisting power. Trudeau has shown that rabbits kept in darkened hutches succumb to infections with tubercle bacilli which they overcome if allowed sunlight and air. There is an old Italian proverb which says:—"*Dove entra il sole, non entra il medico.*" Let the sunshine into the darkened streets and alleys, narrow courts and reeking tenements, and there will be less tuberculosis among the children. Every new park, every new playground, every improved tenement will help in the fight against this greatest scourge of mankind. This is no new doctrine, but it is doctrine that needs to be proclaimed until it is lived up to.

Benign Intestinal Tumors in Children.—Egiz (*Medicinskoie Obozrenie*, Vol. lviii., No. 18, 1902) discusses the frequency and nature of benign growths in the intestines of children. These growths may be adenomata, fibromata, lipomata, papillomata, myomata or angiomata. Intestinal polypi are not very common in children, as seen from the statistics of the Children's Hospital of St. Olga. In this institution 300,260 patients were treated during the past fourteen years, and polypi were found only in 30, or 0.01 per cent. Frequently the symptoms are indefinite and give no direct indications of the nature of the trouble. Intestinal hemorrhage is the most characteristic symptom, and, if present in a person previously in perfect health, the presence of a tumor should be suspected. The other symptoms depend on the degree of obstruction produced by the tumor. The author reports the case of a girl, eleven years old, who had been suffering for several months from abdominal pain, vomiting and audible gurgling. On palpation nothing could be discovered, nor was there any abnormality found on exploratory laparotomy. After the operation the patient was getting progressively worse, and a small tumor was finally discovered on the left side. A secondary operation brought to view a tumor on one of the intestinal loops. The growth was firmly attached to the mucous membrane, and when removed left a considerable space which was obliterated by bringing the gaping edges of the wound together. On microscopical examination it was found to be a fibroleiomyoma.—*Philadelphia Medical Journal*.

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Progressive Medicine. Fifth Annual Series. Vol. II. June, 1903. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by **Hobart Amory Hare, M.D.**, assisted by **H. R. M. Landis, M.D.** Pp. vi.-437. Illustrated. Philadelphia and New York: Lea Brothers & Co., Publishers. Price per volume, \$2.50; per annum, \$10 00.

The present issue of *Progressive Medicine* contains articles by Clark, Coley, Jackson and Stengel. Hernia in infancy and congenital obstructions of the intestines are important surgical subjects edited by Coley.

Stengel gives a valuable *resumé* of the literature on the blood in infectious diseases. Interest attaches to the sections on purpura, myxedema and Basedow's disease.

Text-book of the Diseases of Children for Physicians and Students. By **Dr. Adolph Baginsky**, Professor of Diseases of Children in the University of Berlin. Seventh edition. P. 1,160. Berlin: S. Hirzel. Price, 16.50 marks.

The appearance of a new edition of this standard work within three years is good evidence of its popularity. The new edition is not essentially different from its predecessors. The arrangement and general plan of treatment are the same. The author has endeavored to enrich it with his increased experience and to bring the discussion of all subjects up to date. Considerable increase is noted in the space devoted to the acute infectious diseases. The article on diphtheria reflects the recent exhaustive study of the author on that subject. He calls attention to the increasing vogue of intubation, since the use of antitoxin became general. In the consideration of measles, the author says that he has not been able to convince himself of the constancy of the appearance of the Koplik spots and emphasizes as equally important and characteristic the appearance of a scattered or diffuse grayish deposit upon the buccal mucous membrane. Both the Koplik spots and this deposit, he says, disappear with the full efflorescence of the eruption.

The article on scorbutus shows thorough familiarity with the contributions of American writers to this subject. An entirely new chapter is devoted to the affections of the thyroid gland. Throughout the volume the author's familiarity with the literature of his subject is very evident. One looks in vain for any evidence of appreciation of the advances made in this country in the matter of infant feeding. This and the absence of illustrations constitute the chief defects of the book. In all other respects the new volume is entirely admirable and will serve to increase the high esteem in which the author is already held.

How to Keep Well. By **Floyd M. Crandall, M.D.** New York: Doubleday, Page & Co. 1903. Pp. xvii.,-511. Price, \$1.50.

"The time has come," states the author, "when the medical man should speak, not in his own defence, but in defence of the people, who are easily misled to their own hurt." The physician should show not only what medicine has done to alleviate suffering but to prevent disease.

The author has made a study of the history of medicine, and from this study he makes the title for his volume. He has compared the mortality of disease, epidemic and endemic, and from the comparison shows that modern medicine has improved the treatment of disease; but best of all the physician has done work in hygiene and sanitation that lessens the scourges of plague, small-pox, yellow fever and similar epidemics.

The writer of this book is well qualified to express his views on the rearing of children, and it must be accepted that he has a good foundation for the statement that the mother of to-day has a much more difficult task than had her grandmother. The rearing of children is not as easy as it was under the simpler conditions of life that prevailed one hundred years ago.

Faulty nutrition of children, the prevention of break down, the diseases common to middle life, the sedentary life, and age and its advancement, are all considered in such a readable manner that they cannot fail to enlighten men who would not heed the technical language too commonly used when discussing such subjects.

The book is on the right lines and it will be a useful aid to intelligent physicians. It cannot fail to educate people who are still in the dark ages regarding what medicines has done for them.

Society Reports.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Meeting of Tuesday Evening, May 12, 1903.

DR. JOHN H. JOPSON, CHAIRMAN.

DR. A. A. ESHNER exhibited a

CASE OF PROBABLE RACHITIC DEFORMITY AND A CASE OF IMBECILITY,

the two patients being sisters. In the family history it was noted that the father had been treated for many years for some cutaneous disorder affecting the face. One patient, who was eight years old, had been born at term, without difficulty, had been breast-fed, and had walked and talked normally. There had never been a convulsion. At the age of five and a half years, nodosities began to appear on the hands. They steadily increased in size, but there was no alteration in muscular vigor. The proximal phalanges of the four fingers of the right hand, as well as the metacarpal bones of the index and middle fingers and the proximal phalanges of the index and little fingers, and also the metacarpal bone of the left hand, exhibited somewhat bulbous enlargement, with apparently slight bending. These deformities were well shown in the skiagraphs kindly made by Dr. R. S. Lavenson. The legs were not bowed, but the forehead was bulging and prominent, and the incisor teeth were in part slightly notched. Potassium iodid was prescribed, in doses of from three to five grains thrice daily; but, on the development of symptoms of iodism, syrup of hypophosphites, one fluid dram thrice daily, was substituted, together with beef-juice and orange-juice; and the patient made a steady, if slow, improvement.

The second patient was fourteen years old. She, also, had been born at term, without instrumental aid, after an easy labor. She had been breast-fed and had been nursed for seventeen months. She was not able to stand until she was two years old, and she did not walk until later. She was five years of age before she could speak; and her speech had never been quite clear, although she comprehended perfectly. She had never attended school, and was unable to learn from books. She had had the chicken-pox, whooping-cough, and scarlet fever. For several weeks she had been cross and irritable. For a time, she had complained of headache; but this had grown less marked. She presented a prominent head, with a large lower jaw and full cheeks.

Her expression was cretinoid, the lips being thick and held apart; the tongue, likewise, being thick, and kept much of the time between the teeth. The hair on the head was shorter and thinner than that of other girls in the family. The skin was dry and rough. The thyroid appeared rather full. The pulse was rapid, 120 in the minute; the heart was free from murmur. The kneejerks were slightly exaggerated. Under treatment with thyroid extract, the child became brighter and less irritable, the hair grew thicker, and the skin became less rough in places than it had been.

While each of these cases is interesting on its own account, their particular interest lies in the possible possession of a common etiologic factor; namely, the inherited syphilis. It seems not impossible that this disease might give rise to nutritional disturbances, resulting, in the one instance, in the cretinoid condition; and in the other, in the disorder of the bones.

DR. JOHN H. JOPSON, discussing Dr. Eshner's case, said that the elder of the two sisters certainly exhibits some of the characteristics of cretinism, and that the younger very strongly suggests the presence of a specific infection. There is decided notching of the central incisors in the upper jaw, and the thickening of the phalangeal bones is quite suggestive of a preexisting dactylitis. The involvement of the hands alone and the characteristic shape of the phalanges, associated with the notching of the incisors, are, in Dr. Jopson's opinion, strong evidences of specific infection; and the family history is also very suggestive of this.

DR. JOHN H. GIBBON presented a child a year and a half old, upon whom he had operated for a

PERINEAL ECTOPIC TESTICLE.

The case was sent as one of possible perineal hernia; an examination, however, showed the left scrotum empty, and the left testicle freely movable in the perineum. It could be pushed up nearly as high as the external ring, and back nearly as far as the anus. An incision was made from the external ring downward into the perineum, until the tunica vaginalis was reached; this was separated entirely from the surrounding structures as high as the external ring. As the sac extended high up on the cord, the upper portion of it was dissected free and removed. The posterior wall of the left scrotum was then divided through the same incision, a place was made for the testicle, and the organ entered its place. The operation had been done five or six weeks previous-

ly, and the wound had healed by first intention. The testicle has remained in the new position, and is freely movable in its tunic.

This form of ectopic testicle is extremely rare, and is frequently associated with a form of hernia that Coley has well named "inguinoperineal." He states that he has met with this condition in six instances. This form of hernia is well named, because the testicle passes through the inguinal canal, out of the external ring; and, instead of passing into the scrotum, goes directly downward into the perineum; and the hernia follows it. The testicle in the case reported by Dr. Gibbon was small; but, because of the age of the child, it had been thought wise to preserve it.

DR. HAMMOND thought that the favorable results obtained showed what an advance there had been in surgery during the last decade. In 1870, Mr. Adams reported in the London *Lancet* a case operated upon by Mr. Humphreys, in which the patient died on the third day of peritonitis due to extension of the infection through the funicular process—which was, of course, not closed. Professor Annandale reported another case, in which a successful operation was performed to restore the ectopic testicle, by making an incision over the front of the scrotum, from the external ring half-way down the scrotum; and exposing the cord, by means of which the testicle was drawn out from its abnormal position. In this way, the cord and the testicle were brought into correct position; and the testicle was fastened there by means of catgut sutures passed through it. While Dr. Gibbon had obtained a beautiful result, it was possible that the testicle was still out of the normal position. The speaker believed that had the incision in this instance been made over the dorsum of the scrotum, as indicated, the testicle would have been more likely to remain in its proper position.

DR. GIBBON read a paper on

OBSTRUCTION OF THE BOWELS AND PERITONITIS, DUE TO A
STRANGULATED MECKEL'S DIVERTICULUM,

and reported a case. The patient was a girl ten years of age, who had been admitted to the Pennsylvania Hospital suffering with a general peritonitis, accompanied with vomiting and marked distension of the abdomen. This was supposed to be due to appendicitis. Immediate operation was performed, the incision being made in the right semilunaris. The peritoneal cavity was found to be

filled with a quantity of seropurulent exudate, and a mass of partly adherent intestine was found in the right iliac region. The small intestine was enormously distended. After separating the adhesion, a Meckel's diverticulum was observed. This was covered with plastic lymph and very much inflamed. A fibrous band passed from its extremity in the direction of the umbilicus, and this was broken before its distal attachment had been discovered. When the band was divided, the diverticulum, with the bowel to which it was attached, was easily withdrawn from the abdominal wound. It arose from the ileum, about two feet from the cecum, directly opposite the mesenteric attachment of the bowel. The portion of the bowel to which it was attached had been constricted by the diverticulum to such an extent that there was a distinct white ring extending over about half the circumference of the bowel—such a ring as is frequently seen in strangulated hernia. The diverticulum, therefore, was not only strangulated, but was producing an obstruction of the bowels. The diverticulum measured about two inches in length, and was of the same calibre as the bowel to which it was attached. It was removed, and the opening in the bowel was closed. During the process of separating the adhesions, a tear had been made in the ileum near the diverticulum; and this also was closed. The entire small intestine was removed from the abdominal cavity, which was thoroughly irrigated with salt solution. A gauze-drain was passed down to the bottom of the pelvic cavity; and another was placed about the sutured intestine, being left directly under the wound. Except for some reaccumulation of pus in the pelvic cavity, due to imperfect drainage, from which the patient readily recovered after improvement in the drainage, the convalescence was uninterrupted.

Dr. Gibbon referred to the literature of the subject, and to the various pathological conditions that might be produced by either the attached or the unattached Meckel's diverticulum. The diagnosis of obstruction due to Meckel's diverticulum is next to impossible; although the two symptoms of visible peristalsis and localized meteorism, together with a history of previous attacks of partial obstruction, are supposed to be indicative. The condition has most frequently been confused with acute appendicitis. Halstead has found the mortality of the cases operated upon for obstruction to be 68.1 per cent. Dr. Gibbon laid great stress upon the importance of not administering laxatives in any form of

acute mechanical obstruction of the bowels. The patients, if they are not to be operated upon, will stand a much better chance of recovering if nothing is administered by the mouth and all the food is given by the rectum. The more one sees of obstruction of the bowels, the more ready is one to resort to the early operative removal of the cause.

DR. BERND, discussing Dr. Gibbon's case, said that he had had occasion to see a child that at birth had had an umbilical hernia. On examination, it was found that there was a diverticulum, which, on first sight, looked like the appendix. This diverticulum had also been mistaken for the appendix by another physician. The appendix was, however, discovered lower down; and the diverticulum was amputated. The child made a good recovery.

DR. JOPSON said that the patient exhibited by him to the Society several years previously, to whom Dr. Gibbon had referred, was an infant with a fecal fistula at the umbilicus. The probe entered this fistula for a distance of an inch or two. It was evidently an instance of the complete persistence of the omphalomesenteric duct. Dr. Jopson, when presenting that patient, had called the attention of the Society to the added danger in the case, in which, in addition to the usual danger attending Meckel's diverticulum, there was that of a prolapse of the ileum through the diverticulum, causing an obstruction that usually has a fatal result.

DR. AUGUSTUS A. ESHNER exhibited a

PATIENT WITH MITRAL OBSTRUCTION.

She was a girl sixteen years old, and said that she had been sick for ten years. She complained of cough with dark-colored expectoration, and on one occasion she had had hemoptysis. She also complained of recordial pain and backache. She exhibited slight choreiform movement of the right upper extremity. The chest was somewhat pigeon-breasted in shape. The cardiac apex-beat was extensive; and was visible in the left sixth interspace, within the nipple line. Pulsation synchronous with that of the heart was visible in the left fifth interspace, within the nipple line; in the parasternal line; and, also, in the epigastrium. On palpation, a distinct, marked presystolic thrill could be felt. The area of cardiac dullness extended from the left sternal border

to half an inch outside the left nipple line, and from the left fourth interspace to the costal margin. At the apex and to the left, a presystolic murmur was audible, followed by a systolic shock; the site of maximum intensity being at the seventh rib in the anterior axillary line. The pulmonary resonance was preserved, but many moist râles were present on both sides of the chest. Vocal resonance was not increased. The sputum had not yet been examined for tubercle bacilli. There were slight left scoliosis and moderate kyphosis in the dorsal region, and the right shoulder was a little lower than the left. The urine had been found to contain albumin, but a microscopic examination had not yet been made. The patient gave a history of having had diphtheria twice, whooping-cough and measles in infancy, and nervousness for ten years.

DR. C. F. JUDSON reported a

SEVERE CASE OF CHLOREA COMPLICATED WITH PNEUMONIA,
in a girl of thirteen years.

DR. E. M. L'ENGLE for himself and DR. J. WOODS PRICE, read a report of a

FATAL CASE OF OIL OF GAULTHERIA POISONING

in a child of two years. The child, a girl, took, on April 18, 1903, one dram of oil of gaultheria (oil of birch), one hour before being brought to the hospital. She vomited before arriving there. Temperature, 98.6° F.; pulse, 100; respiration, 26 and regular. Two hours later, the patient complained of abdominal pain, great thirst, and drowsiness. Pulse, 150. One hour later, there were flushing of the face, labored respiration, impaired hearing, and hallucinations of vision, diarrhea, delirium, and slight twitchings of the muscles of the neck and hands. There were general convulsions seven hours after the ingestion of the poison. These symptoms increased until death occurred, ten hours after the ingestion of the drug, from respiratory failure.

DR. PRICE said that in looking over the records of cases of poisoning with oil of gaultheria that had occurred previously to 1901, Dr. L'Engle and himself had found 10 cases, 2 of whom had recovered. All 10 had presented very much the same symptoms as were found in their case; and death had usually occurred within twenty-four hours, although some of the patients had lived for forty-eight hours. The dose had varied from two drams to half a pint.

DR. R. S. McCOMBS read a short report of

THREE CASES OF APHASIA,

which had occurred in the practice of Dr. J. Madison Taylor, who had placed the notes at Dr. McCombs' disposal. Aphasia, the motor form especially, is comparatively rare in childhood, although not extremely so; and is more frequently seen when the resistance has been lowered by some infectious process. In the first 2 cases reported, there was great similarity in the early phenomena, the aphasia having appeared after generalized convulsions and other symptoms of cerebral hemorrhage. The patients, children aged twenty-two and seventeen months, respectively, had previously been healthy. In both, the faculty of speech, while not having been long established, was fairly well possessed—about as well as could be expected in children of their age. There were other children in the family of each patient, and these were perfectly healthy. It was impossible to elicit any evidence of syphilis or of any underlying cachexia. In the first case, the recovery was complete, except for the local phenomena, the function of speech not having been restored, and a certain amount of paralysis of the right side of the face having still remained; in the second, the aphasia entirely disappeared, and the child now appears to be in excellent general health.

In the third case, the child, aged three years, had never spoken. There were evidences of hereditary syphilis in certain characteristic stigmata that the child possessed, a history of still-born children in the family, and the symptoms of a chronic meningitis in the child. Specific treatment was given the child. After one month, the symptoms of meningitis had disappeared, the general condition had greatly improved, and there was an effort at spontaneous speech, the child being able to say, "Mamma." At the present time, Dr. McCombs thinks that it is impossible to state positively that this case comes under the head of hereditary syphilis, as the time has been too short to test this thoroughly. The paper closed with a short discussion of Aphasia in Childhood.

DR. JOYSON said that the results of the therapeutic test in the last case were so striking that one would be strongly tempted to make a diagnosis on this ground alone. The improvement under antisyphilitic treatment was very marked, he thought. Time alone would tell whether the improvement would be permanent, and would be followed by the development of the power of speech.

SOCIETY FOR THE STUDY OF DISEASE IN
CHILDREN.—LONDON.

Meeting of Friday, April 17, 1903.

DR. LEWIS MARSHALL (NOTTINGHAM), CHAIRMAN.

DR. DAVID WALSH showed a case of

ICHTHYOSIS HYSTRIX

in a female, aged six and one-half years. The condition was noticed shortly after birth and occurred on the neck and face. That on the side of the neck was verrucose and deeply pigmented, that on the face was in a hypertrophied condition, somewhat like cheloid but without warts or pigmentation, and terminated at the middle line.

MR. GEORGE PERNET said he did not agree with Dr. Walsh's views, the greater part of the growth was of the nature of a white mole; he would only admit that it was certainly developmental. He said it did not suggest to him cheloid and it did not come within the category of warty streaks.

DR. POTTER PARKINSON showed a case of

DEXTROCARDIA IN A CHILD OF SIX YEARS.

It was admitted into hospital with rheumatic fever and the condition of the heart was discovered in the course of a physical examination. The heart sounds were natural and there was no displacement of the viscera.

DR. GEORGE CARPENTER showed a case of

SCURVY IN A FEMALE INFANT OF NINE MONTHS,

of which the prominent feature was hematuria. The child's gums were spongy, there were no subperiosteal hemorrhages and it was also rickety. He drew attention to two features in the case, viz.: well-marked snuffles and extensive craniotabes over the parietal bones. He had frequently called attention to this situation in the skull as being the usual one, and not the occipital bone as was taught. He said that craniotabes was most common during the second, third and fourth months of life and that by the ninth month it was infrequently met with, that during the pre-rickety period of life craniotabes was a marked feature and when rickets was present craniotabes was found infrequently. He thought there was a difficulty also in giving a true value to chronic snuffles. In some congenital adenoids were present, in others not,

and in others again, the posterior nares could not be examined. Some were certainly syphilitic manifestations but about others there was some doubt. This patient had congenital adenoids. When he found craniotabes he suspected syphilis and it prompted him to make an exhaustive inquiry.

DR. EDMUND CAUTLEY thought that too much stress could not be laid upon snuffles in hospital practice, but in private practice he would look upon it with suspicion. He could not agree with Dr. Carpenter that craniotabes was very frequently associated with syphilis. He looked upon craniotabes in many instances as due to errors in diet which later on might lead to rickets or other disorders of nutrition. He thought that syphilis might predispose to it, inasmuch as it debilitated the child and impaired its nutrition. He called attention to venous dilatation on the scalp, which a French author thought to connect with syphilis, but which he regarded as due to malnutrition and thinness of the skin of the scalp.

MR. SYDNEY STEPHENSON asked whether the condition of spongy gums was invariably limited to the site of erupted teeth.

DR. G. A. SUTHERLAND thought the condition of craniotabes was not nearly so common as had been taught, and was inclined to believe it was syphilitic in origin. In his experience, also, the parietal bone was the most frequently affected, but in some cases it was singular how generalized the condition was in the skull bones. Snuffles was another difficult problem. Snuffles was not to be regarded as diagnostic of syphilis; if there was any doubt during the first two or three months of life as to whether a case was adenoids or syphilis he would say syphilis was very much more likely than adenoids. It was surprising how many children were brought for advice because of hematuria, especially under the age of twelve months. At an autopsy in 1 case the pathologist found an extravasation of blood under the mucous membrane of the bladder.

MR. J. S. MACINTOSH had seen many young babies with congenital adenoids and thought that some cases of catarrh of the nose were gonorrheal in origin.

MR. HENRY SKELDING (Bedford) asked whether the child had been taking mercury before coming to hospital. He had seen a similar condition produced by that drug.

THE CHAIRMAN said that children suffered from snuffles from causes which were unimportant. It would be very rash to arrive

hastily at the conclusion that children who suffered from them were necessarily syphilitic. He thought that craniotabes was not as common as was supposed and when it existed he did not attribute it to syphilis; malnutrition might induce such a condition. He did not think that Dr. Carpenter had very clearly made out that his case was one of scurvy rickets. He did not notice the mention of subperiosteal hemorrhages or a purpuric eruption. Hematuria was very common in children and the causes were often quite unimportant, one of the commonest was lithiasis. He had recently seen in the Midland Counties 3 or 4 cases of scurvy rickets which were the direct products of Mellin's food.

MR. GEORGE PERNET considered craniotabes suggestive of syphilis and with regard to snuffles he would not diagnose congenital syphilis on that condition alone. He had noticed how pale the infant was owing to improper feeding with food deficient in iron. He would advise the daily use of thoroughly-cooked green vegetables to remedy that deficiency.

DR. CARPENTER, in reply, said that his experience of craniotabes had been drawn from the observation of 238 typical cases of that state and he did not think the condition an uncommon one. He did not consider subperiosteal hemorrhages and purpura essential to the diagnosis of scurvy; the case he had shown was in his opinion typical of that condition, although it lacked these manifestations, on which Dr. Marshall had laid stress. Spongy gums did, occasionally, arise in edentulous infants but that was unusual. In his experience infants taking mercury did not develop spongy gums and hematuria, and his case had not taken that drug.

DR. LEWIS MARSHALL read a paper on cases of

DEFORMITY OF THE HANDS AND FEET

reproduced with singular faithfulness in five succeeding generations. Each hand and foot lacked the distal and middle phalanges and the little and ring toes were ill-developed.

The Treatment of Scarlet Fever.—Adolf Baginsky (*Berlin. Woch.*, December 8, 1902) believes that scarlet fever is caused by streptococci. He used first the old Aronson antistreptococcus serum, with a mortality of 11 per cent. At the same time the mortality in cases treated without this serum was 14 per cent. The new Aronson serum, on the other hand, resulted in marked diminution of all symptoms almost at once. This serum together with the new Moser serum seems to Baginsky to give a brighter outlook for the treatment of scarlet fever—*Philadelphia Medical Journal*.

Current Literature.

PATHOLOGY.

Karnizki, A. O.: The Blood of Healthy Children. (*Arch. f. Kinderhk*, Vol. xxxvi., p. 42.)

From a study of the blood of thirty-eight nurslings and eighty older children the average number of red cells per cubic millimetre was found to be 5,583,000, during infancy and 5,892,000 for later childhood. The variations are not great. The leukocytes are most numerous during infancy, the average being 12,628, while in later childhood the average is 7,543. In the blood of healthy children the lymphocytes are, in general, larger than in adult blood; this is due to the larger size of the nucleus. Some lymphocytes stain intensely blue, and some less so. Eosinophiles vary in size and form. Eosinophile myelocytes are also found in the normal blood in children. Up to the age of seven and one half months nucleated red blood cells are found. These are of two varieties: (a) cells with sharply staining nuclei, the cell protoplasm taking the color of the hemoglobin of the nonnucleated red cells. (b) larger cells whose nuclei show a radiating network of dark violet on a light blue ground, the cell protoplasm staining less deeply than in the other variety.

The lymphocytes average 57.8 per cent. during infancy and the neutrophiles 29.3 per cent. The transition forms decrease in numbers with the age of the child, as do all forms of leukocytes except neutrophiles and eosinophiles. Up to the age of four years the lymphocytes are more numerous than the neutrophiles (14 per cent. more on an average). After the fourth year the neutrophiles are more numerous, but only 4 per cent. more up to the age of eight. After that the neutrophiles are far more numerous.

Nobécourt P. et Coisin, Roger: Lumbar Puncture in the Broncho-pneumonia of Children. (*Rev. Mens. des Malad. de l'Enf.*, April, 1903, p. 145.)

Lumbar punctures were made in 31 cases, 7 showing no meningeal symptoms, 24 giving symptoms ranging from simple stiffness of the neck to generalized convulsions; 5-10 c.c. of fluid were drawn in the first 7 cases. This fluid was clear, contained

albumin in some cases, and ordinarily there were no cellular elements; in 2 cases there were lymphocytes or polynuclear leukocytes; 20-30 c.c. were collected in the other cases, albumin was less often found. In half of the cases cellular elements were inappreciable. In the 12 in which leukocytes were found, 4 reacted very slightly. In the others there were lymphocytes alone, lymphocytes and polynuclears, and in 2 cases polynuclear cells predominated. Pneumococci were found in only two instances. On second puncture some of the previously clear fluids contained pneumococci; and the pneumococci in other cases disappeared, as the symptoms abated. So that it may be noted that all degrees occur from simple irritation to purulent meningitis, associated with bronchopneumonia.

Boyd, Sidney: A Case of Typhoid Fever in the Ninth Month of Pregnancy with the Birth of a Healthy Child. (*Journal of Obstetrics and Gynecology of the British Empire*, April, 1903, p. 340.)

The woman's illness began in the eighth month of pregnancy. In the fourth week of her fever labor came on and terminated naturally in the birth of a perfectly healthy child. A positive Widal reaction was obtained from the blood of the mother, but not from that of the child. The mother made a good recovery. The case shows that the epithelium of the chorionic villi may act as a filter and prevent the passage of organisms from the maternal to the fetal blood, although Fordyce, Widal, Eberth and others have published cases where the fetus has been infected under like conditions.

Churchill, F. S.: The Blood in the Typhoid of Children. (*Boston Medical and Surgical Journal*, June 25, 1903, p. 692.)

The writer made a study of the blood conditions found in 47 cases of typhoid fever in patients from twenty-two months to twelve years of age. His conclusions follow:

(1) The blood in the typhoid fever of childhood differs from that of adult typhoid only in degree. (2) The erythrocytes are reduced in number, especially during the first three weeks, after which they begin to increase rapidly, reaching normal in the fifth week. (3) The hemoglobin suffers proportionately more than the erythrocytes. (4) The leukocytes are reduced throughout the first four weeks, the lowest average being reached during the second week, except in severe and tedious cases. (5) The leu-

kopenia is of diagnostic value, especially in children, in whom most febrile affections produce a leukocytosis. More data are needed to determine the priority of appearance of a "positive" serum reaction or a leukopenia. (6) The relative proportion of the different varieties of leukocytes varies at different periods of the disease, the greatest variations being found in the polymorphonuclear and mononuclear elements, the former diminish and the latter increase as the disease advances. The increase in the mononuclears is chiefly in the lymphocytes. Analysis of large numbers of cases grouped by age and week is desirable.

Schambacher, A.: On the Persistence of Gland-Canals in the Thymus and Their Relation to the Origin of Hassall's Corpuscles. (*Virchow's Archiv.*, Bd. clxxii., Hft. 3.)

A four-year-old boy who had suffered from suffocative attacks died during the performance of a tracheotomy undertaken for relief. In the examination of the enlarged thymus found at autopsy, Schambacher found that the Hassall corpuscles lay within circular canals lined with an epithelial layer of flat cells. In these canals neither blood cells nor pigment could be found; they were, therefore, not connected with the blood vessels. The nature of these canals was altogether obscure. Thirty other glands, from children of various ages from birth up to five years, were examined and the same picture found. From the observations made upon this series the writer concludes that the Hassall corpuscles arise or are derived from the epithelial lining of these canals. As these canals were apparently connected neither with blood or lymph vessels, he inferred that they constitute the remains of excretory ducts. This opinion rested partly on the origin of the organ from the entoderm and the observation of the remains of epithelial passages in the thymus.

A series of observations of the thymi of fetuses of various ages was then made. Similar canals were found in the thymus in all these cases, and Schambacher concludes that they are without doubt excretory ducts. The thymus is developed originally as an involution from the third or third and fourth gill clefts. By thickening of the epithelial lining of the tubes these are gradually narrowed and finally obliterated at their points of origin. How, out of the primary, true gland, a lymphoid organ is finally evolved and what processes are concerned in the transformation, remain unexplained.

MEDICINE.

Coutts, J. A.: A Case of Acute Ependymitis. (*The Lancet*, April 25, 1903, p. 1,163.)

Ependymitis as a distinct pathological condition is more frequently dealt with by American than by English writers. References to it, both as an acute and chronic condition may be found in the works of Delafield and Prudden, Osler, Holt and others. All these writers treat acute ependymitis simply as a pathological condition. The relation between chronic ependymitis and hydrocephalus is now fairly well established.

The case reported is that of an infant three months of age, who was under observation for forty days with symptoms of persistent vomiting, obstinate but not severe diarrhea, frequent convulsions, at first unilateral, later general, irregular temperature, and greatly increased knee-jerks. Kernig's sign was not obtained. At autopsy there was no meningitis found, but the convolutions were flattened and all the ventricles were distended with thick, turbid, whitish-green pus. The foramen of Magendie was apparently blocked and the spinal membranes were not involved by the process. Cover-slip preparations and cultures from the ventricular pus showed streptococci.

Smith, P. H.: An Example of Direct Infection in Typhoid Fever. (*The Lancet*, April 11, 1903, p. 1,027.)

An epidemic of typhoid involving nine members of one family, when there were no other cases of typhoid in the city (Haggerston), is reported. The circumstances surrounding the cases render it extremely probable that the disease was spread by direct infection. Six of the patients were under the age of sixteen, the youngest was a girl, aged one year and four months.

Collins, J.: A Clinical Report of Nine Cases of Friedreich's Ataxia. (*American Medicine*, May 30, 1903.)

The writer reports a series of cases observed in his clinic during the past five years:

The most striking features of Friedreich's disease are (1) its occurrence in more than one member of the family, and (2) its development in early life, usually about the time of puberty. Aside from these two factors nothing is known of its etiology. If the present-day conception of the genesis of the disease is correct, or approximately so (that it is an evolutionary defect or

teratologic manifestation), then very little further can be known.

The distinguishing clinical features of Friedreich's disease are:

- (1) Ataxia of all purposeful movements and of station; inco-ordination due to the loss of the sense of equilibrium.
- (2) Loss of the tendon-jerks; diminished myotatic irritability and muscular weakness which may amount to paresis of the lower extremities.
- (3) Deformities of the spine, usually scoliosis, lateral curvature and deformity of the feet, commonly pes cavus, with extension of the big toe.
- (4) Nystagmus, static and dynamic.
- (5) Disturbance of articulation and intonation.
- (6) Features that distinguish it from tabes or locomotor ataxia: absence of lancinating pains, intactness of sensibility, normal pupillary reactions, no disturbance of vision and noninvolvement of the urogenital sphere.

Billings, J. S., Jr.: The Work Performed by the Diagnosis Laboratory of the Department of Health in Connection with Ehrlich's Diazo Reaction During 1902. (*New York Medical Journal*, April 18, 1903.)

The writer's conclusions are:—

- (1) The examination of the urine in cases of suspected typhoid fever is of value, provided that its limitations are recognized.
- (2) While not so absolutely pathognomonic of typhoid fever, yet the diazo reaction is even more constantly present in that disease than the Widal reaction, so that its absence at a period when it should be present, if the case is one of typhoid fever, is of considerable value in making a negative diagnosis.
- (3) In a majority of instances the diazo reaction is present in the urine at least forty-eight hours earlier than the Widal reaction in the blood.
- (4) It disappears much earlier than the Widal reaction, however, and negative results obtained later than the second week are of little or no value.
- (5) "Doubtful reactions" have slight significance.

Aldrich, C. J.: Neuritis from Whooping-Cough. (*New York Medical Journal*, June 6, 1903, p. 1,026.)

A boy of four years had a severe attack of whooping-cough. In the middle of the fourth week he became weak in the legs and complained of pain in the toes and ankles, which were slightly swollen and tender to touch. There had been no symptoms or signs of diphtheria. A little later similar conditions developed in the hands and arms. Nasal speech developed and fluids regurgi-

tated through the nose. The reflexes were diminished and there was some impairment of sensation in all extremities. The palate was paralyzed; the splinters were not affected. There was never marked atrophy, but the muscles became soft and flabby. The literature of the subject is given *in extenso*.

Fruhinsholz, A.: A Study of Ninety-five Cases of Infantile Syphilis. (*Rev. D'Hyg. et de Med. Inf.*, No. 1, 1903, p. 1.)

Among 17,282 children under twelve years of age presenting themselves at the Children's Clinic of Haushalter from November, 1893, to July, 1902, 186 or 1.07 per cent. were syphilitic. Of this number 96 were made the subjects of study. Among the 96 were 84 cases of hereditary syphilis, and 12 of acquired.

Of the 84 cases of hereditary syphilis 54 presented themselves in their first year, only 11 in the second, and but 19 were from 3 to 12 years of age. Again of the 54 cases in their first year, 11 belonged to the first month, 9 to the second, 6 to the third, 8 to the fourth, 2 to the fifth, and 4 to the sixth, so that 40 of the 54 were less than 6 months of age.

In 23 out of 40 observations the first symptom of the syphilis was an eruption on the skin; in 10 out of 40 observations it was a persistent coryza. More exceptional modes of onset were simple cachexia, arrest of development, and hydrocephalus. The specific nature of the last affection was proven by later skin eruptions.

Of the 54 cases belonging to the first year 48 presented eruptions upon the skin or mucous membranes. In 18 the eruption was general, in 27 discrete and localized. The appearance of the eruption upon the face is most characteristic, producing the so-called mask of hereditary syphilis. The eruptions are illustrated by most excellent plates.

Osseous lesions are frequent in hereditary syphilis; they were met with in 14 of 54 cases. In 3 cases the lesions were parasymphilitic, falling in the category of dystrophic stigmata; in 9 cases the lesions were those of a specific osteitis; in 2 both orders of lesions were found.

After the first year the clinical manifestations of hereditary syphilis lose their uniformity. Lesions of the nervous system are common. Hemiplegia was observed in 3 cases. The cutaneous lesions are localized, especially upon the anal mucosa.

The pathological lesions of hereditary syphilis found in the liver, kidney, pia mater, etc., are described and finely drawn.

Shaw, F. W.: Congenital Hypertrophic Stenosis of the Pylorus. (*Brooklyn Medical Journal*, May, 1903, p. 211.)

A boy, about five years old, had from infancy suffered from recurrent attacks of abdominal pain and vomiting, each attack lasting several days and being relieved by rest, fluid diet and catharsis. In the intervals he was well and thrived. Finally he succumbed to an attack lasting ten days.

The pylorus at autopsy was found to be a hard, resisting mass of hypertrophied tissue, conical in shape and about three-quarters of an inch long. The canal would admit a probe, under pressure, but was absolutely tight to all fluids, owing to a swollen and twisted condition of the mucous membrane. There were no ulcerations and the mucous membrane of the stomach was but little congested.

Two cases of partial pyloric hypertrophy in which spasm appeared to predominate are reported in a boy, aged 2.5 years, and a girl of 2 months 18 days.

Ellegood, J. A.: Membranous Croup and Diphtheria. (*International Medical Magazine*, May, 1903, p. 257.)

From a careful consideration of the subject the writer has arrived at the following conclusions: (1) That there is no such independent disease as true croup. (2) That pseudomembranous inflammation of the mucous membrane of the croupous or diphtheritic type, whether or not attended with or followed by paralytic sequelæ, is always caused by the Klebs-Löffler bacillus in some phase of its existence. (3) That the bacillus is a facultative saprophyte; that the virulent and the nonvirulent types are of the same genus of microorganisms, and that the nonvirulent type is the same organism undergoing a kind of saprophytic state of existence which is interpolated in the life history of the parasitic bacillus. (4) That the degree of toxicity manifested depends upon certain unknown vital conditions of that microorganism, upon the anatomic character of the part attacked, upon the degree of immunity possessed by the blood and tissues of the body on which it finds lodgment, and upon the effect on the specific germ and its toxins of associated bacteria and their products. (5) That isolated cases of diphtheria, or those which do not give rise to infection, are as frequent as the cases of membranous inflammation of the larynx in which the membrane is confined to that organ without giving rise to infection or to the constitutional symptoms

of diphtheria. (6) That inability to find the specific bacillus in a small proportion of cases is due to faulty technique, the late stage in the disease at which the bacteriologic examination is made, unknown morphologic conditions of the microorganism, to the development of peculiar or unusual relation to staining reagents, to autolysis, or to the action of other bacteria. (7) That antitoxin when administered early in uncomplicated cases is an almost unfailing remedy, and is useful in all cases.

Morse, J. L.: The Relation of Chronic Enlargement of the Spleen to Anemia in Infancy. (*Boston Medical and Surgical Journal*, May 28, 1903, p. 573.)

As the result of a study of 22 cases of chronic enlargement of spleen associated with anemia in infants, the writer reaches the following conclusions: When anemia, splenic tumor and enlargement of the liver or lymph nodes are found in association in infancy they are in no way dependent on each other, but are all manifestations of a common cause—disturbance of nutrition; that there is nothing characteristic about the blood changes found in association with enlargement of the spleen, as similar changes are found when there is no enlargement of the spleen; that the anemia is secondary rather than primary; that there is no justification for placing the cases of anemia in infancy associated with enlargement of the spleen or liver in a class by themselves and calling it "anemia infantum pseudo-leukemica," or "splenic anemia of infancy"; that these terms should be dropped from our nomenclature.

Turner, W. A.: Prognosis and Curability of Epilepsy. (*Lancet*, June 13, 1903, p. 1,650.)

A total of 366 cases derived chiefly from the out-patient records of the National Hospital for the Paralyzed and Epileptic, has been used for investigation. Taking a period of remission of at least nine years as evidence of a cure the writer finds 10.2 per cent. of epileptics curable. A family history of epilepsy is most often found among the confirmed epileptics, but a hereditary history of epilepsy does not necessarily militate against the prospects of arrest or improvement of the disease in any given case. The age of onset has an especial bearing upon the prognosis. The most unsatisfactory cases are those in which the disease commences under ten years of age; they show the smallest percentage

of recoveries and the largest of confirmed cases. The direction of the malady influences the prognosis to the extent that arrest or improvement is much more likely during the first, than the second five years.

Friedjung, J. K.: Two Cases of Glioma Cerebri. (*Archiv. f. Kinderhk.*, Vol. xxxv., No. 1 and 2, p. 374.)

The elder child was a girl of nine years, whose cerebral symptoms began with headache and vomiting fourteen months before death occurred. The gait was ataxic, becoming progressively worse; the right arm was almost paretic. Sight and hearing were impaired. At the autopsy a glioma as large as a small apple was found in the pons and corpora quadrigemini, compressing the left cranial nerves from the fourth to the twelfth. Chronic tuberculosis of the lungs and bronchial lymph nodes were present, and there was a chronic hydrocephalus.

The second case was a boy two and a half years old, with a marked hydrocephalus. At the age of fifteen months attacks of syncope appeared, and later there were lightning-like twitchings of all extremities. For four months before his death the child could neither walk nor sit up. Tremor and nystagmus were marked. At the autopsy a glioma as large as a man's fist was found in the right cerebral hemisphere, pressing the basal ganglia to the right. The convolutions were markedly flattened.

In the first case the diagnosis of cerebral tumor had been correctly made, but a tuberculous growth was suspected. In the second case the hydrocephalus only was diagnosed.

Seelheim-Brünen: Two Cases of Diabetes Mellitus in Childhood. (*Der Kinder Arzt*, April 3, 1903, p. 81.)

The first case was that of a fourteen-year-old boy, who suffered from diabetes during a period of seven or eight months before his death. There was 5 per cent. of sugar in his urine, which no change in diet could reduce. His face assumed a melancholy expression, and emaciation was progressive.

The second boy was three years old, had a neurasthenic mother, and passed 4.5 per cent. of sugar in his urine. He died eight weeks after the onset of his diabetes, which diet did not control.

Neither case had increase of appetite; both presented a changed facial expression (melancholy), and both had a neurasthenic

family history, although neither diabetes nor any organic disease was found in either family.

Therapeutically, the withdrawal of carbohydrates is not only useless, but even harmful, in that the excreted sugar is taken from the body proteids and the amount passed in the urine remains the same. The author would simply reduce the amount of bread ingested to a minimum and allow a diet of meat, potatoes and vegetables, with wine poor in sugar.

Twanoft, A.: Vincent's Angina and its Complications.
(*Med. Obos.*, Vol. lix., No. 2, p. 94.)

The clinical picture of Vincent's angina is sufficiently characteristic. A white pultaceous exudate appears on one of the tonsils; the exudate can be easily removed, leaving an ulcerated area behind; a fetid odor issues from the mouth and salivation is present; the submaxillary glands are swollen and painful; fever is slight, if at all present; the duration is one to two weeks or longer, and constitutional derangements are absent.

The affection is caused by a fusiform bacillus, and until quite recently a good prognosis was given. However, several complications have been lately reported, which throw a somewhat different light on the disease. Albuminuria, abscesses, articular pains and even appendicitis have been seen to follow in the wake of Vincent's angina.

According to the author in these complicated cases streptococci have generally been found in the tonsillar exudate, besides the specific fusiform bacilli, and he is, therefore, inclined to attribute the complications to streptococcus infection.

Stolkind, E. J.: Three Cases of Bronchial Asthma in Children.
(*Med. Obos.*, Vol. lix., No. 4.)

The patients were boys of seven, eight and fourteen years respectively. All three presented the reflex type of asthma. The hereditary element was strongly marked in all 3 cases; one boy had a paternal grandfather and two aunts who suffered from asthma; the second boy came of a tuberculous stock; in the third case the hysterical mother had two asthmatic sisters. All three boys were markedly neurasthenic.

From the therapeutic point of view it is noteworthy that iodids exercised a very beneficial effect on the oldest boy. Attacks which otherwise lasted three to four days could be cut short by the timely dose of an iodid.

The prognosis of bronchial asthma in children is good, as a rule, although occasionally the disease may persist for years and even decades.

Dukelsky, W. J.: Vulvovaginitis in Children. (*Russki Vrach*, April 12, 1903, p. 564.)

The author classifies cases of vulvovaginitis in childhood as (1) infectious and (2) catarrhal or noninfectious.

The infectious form is in the great majority of instances due to the gonococcus (80 per cent. of all cases); however, it may also be caused by the diplococcus and other, as yet unspecified, micro-organisms. The gonorrheal variety is always extremely protracted in its course; setting in acutely, it is bound to become chronic. On the other hand, infection with diplococci and other bacteria leads to an acute but mild vulvovaginitis, ending in rapid recovery. Finally, the noninfectious or catarrhal variety is characterized by an invariably chronic course without any acute stage.

The exact diagnosis must be based on bacteriological examination. One point may, however, be utilized, namely, the involvement of Bartholin's glands, which occurs only in the gonorrheal variety.

The author thinks that most children are infected by their mothers, occasionally during labor, oftener later on. The general health of the child does not appear to have any etiological significance. In all cases of direct infection (sexual assault, etc.) the disease assumes a severe type with a tendency to high fever and complications.

Berkenheim, G. M.: Diabetes Mellitus in Childhood. (*Russki Vrach*, March 22, 1903, p. 469.)

There are in literature about 500 reports of diabetes mellitus in children. The disease appears to be less infrequent in early life than was formerly supposed. It occurs in children of all ages, showing some predilection for older girls. Neither trauma nor heredity seems to have any etiological significance, the affection being apparently toxic in origin.

Juvenile diabetes presents certain features peculiar to itself, such as: the large amount of sugar and comparatively small amount of urea excreted; the tendency to run an acute course, about fifty times more rapid than in adults; the almost invariably fatal termination; the occurrence of urinary incontinence; the

infrequency of tuberculosis as a complication; the frequency of edema of eyelids and extremities, seldom seen in adults.

The majority of cases end in coma, which is often preceded by the appearance of granular cylinders in the urine.

Treatment is practically hopeless and must consist in hygienic and dietetic regulations.

Weil, P. Emille, and Cler, A.: Chronic Splenomegaly with Anemia and Lymphocytemia. (*Ann. de Méd. et Chir. Inf.*, February 15, 1903, p. 119.)

I. The first case cited refers to a baby six months old, with no tubercular, syphilitic, nor malarial history. At two months he had a profuse diarrhea, and at three months bronchitis. For the past month enlargement of the abdomen was noticed, and the child suffered when touched in this region. Several days before coming under observation there were green stools with mucus, and loss of appetite. On examination the child was pale, with loss of flesh and strength; a splenic tumor, occupying the entire left side, was felt; there was no glandular enlargement nor other abnormality. The blood examination showed: Red cells, 3,013,200; hemoglobin, 88 per cent.; white cells, 8,264; polynuclear, 25.5; eosinophiles, 1.5; mononuclear, 63; large mononuclear, 10; no myelocytes; no nucleated red cells; poikilocytosis; polychromatophilia.

II. The second child was two years old, with no obtainable history, but showing no rachitic deformity nor syphilitic stigma. Pallor was extreme, and there was loss of flesh and strength. A splenic tumor was easily palpable, descending to the iliac spine; in this case, also, there was no abnormality in the glands or other organs. The blood count showed: Red cells, 2,876,800; hemoglobin, 54 per cent.; white cells, 7,250; polynuclear, 32.73; mononuclear, 63.27; large mononuclear, 4.0. It is noted that in each examination all the nucleated red blood cells are normoblasts, the mononuclear leukocytes are either of medium or large size and there is marked poikilocytosis.

Zuppinger: Chronic Diffuse Myocarditis in Children. (*Archiv. f. Kinderhk.*, Vol. xxxv., p. 381.)

Two cases are detailed, occurring in a girl of twelve and a boy of ten years, respectively. The former case ran a subacute course,

death having been hastened by an acute bronchitis. The boy's cardiac symptoms dated from an attack of measles four years before death; one year later he had suffered from croupous pneumonia. Death was due to cardiac insufficiency, no intercurrent disease having appeared. The most striking symptoms were those pointing to congestion of the liver, lungs and intestinal tract.

The prognosis is bad, recovery being impossible. The disease may last from five months to two years. Absolute rest in bed, oxygen inhalations and general tonic treatment are the only therapeutic measures possible.

Williams, W. C.: Influenza in Children. (*Journal American Medical Association*, July 4, 1903, p. 28.)

The writer sums up his article in the following:—(1) Children of any age, even early infancy, are susceptible to the influenza infection. (2) Repeated relapses and grave sequelæ are frequent in cases where the initial seizure is mild as well as where it is severe. Therefore, no attack should ever be considered as "mild" nor as recovered from until a sufficient time has elapsed. (3) Clinical diagnosis should always be supported by the evidence of the microscope, whenever possible, as the practical certainty thus obtained may be of great value in explaining future developments.

SURGERY.

Duel, A. B.: The Operative Treatment of Stenosis of the Larynx Following Intubation and Tracheotomy. (*New York Medical Journal*, May 2, 1903, p. 784.)

The important points brought out by the writer are:

(1) About 1 per cent. of all patients intubated for acute laryngeal stenosis will "retain" the tube.

(2) The cause of the retention is due, in the majority of cases, to chronic inflammation of the intralaryngeal mucous membrane and hypertrophy of the subglottic tissues, and is not as has been generally supposed, the result of granulation, ulceration, or cicatricial bands.

(3) Autoextubation in these cases is the rule, and adds greatly to the danger where an experienced intubator is not at hand. As a result of this a large number of such cases are tracheotomized for safety.

(4) Where high tracheotomies are done, cicatricial bands are almost certain to form in the trachea or lower part of the larynx above the tracheotomy wounds.

The points in treatment which should be emphasized are:

(1) The largest sized tube possible should be inserted, under an anesthetic. In case of contraction, rapid dilatation should be done by beginning with the small sizes and working up to the large special tube, which is to be left in place. This special tube should be as large as can be inserted, and the constriction below the neck only $\frac{1}{32}$ of an inch smaller than the retaining swell.

(2) This tube should be left in, undisturbed, for six weeks at least. It should then be removed, and, if a cure has not been accomplished, it should be replaced for six weeks longer.

Curtis, H. J.: Congenital Parosteal Sarcoma. (*The Lancet*, April 11, 1903, p. 1,028.)

At birth a tumor the size of a small hen's egg was noticed over the left shoulder. The tumor increased steadily in size until its removal at the age of five and three-quarter months. The tumor was found to arise from, or be connected with, the acromion process of the scapula. Microscopically, the growth proved to be a typical mixed, small spindle and round celled sarcoma. Three small glands excised from the immediate neighborhood of the tumor showed no evidence of infiltration with the growth. The child made a good recovery. Three weeks later he was brought back to the hospital with fever, prostration, and enlarged inguinal glands, the condition being at first thought to be a general invasion with sarcoma, but in a short time the general condition greatly improved and the enlarged glands returned to normal size.

Dunlop, J. B.: A Case of Acute Enteric Intussusception Caused by the Invagination of Meckel's Diverticulum. (*The Lancet*, April 4, 1903, p. 961.)

A boy, twelve years of age, was seized with an illness which rapidly developed characteristic symptoms of acute intussusception. Operation was made and a tumor twelve inches long found. This was reduced and at its apex a Meckel's diverticulum, almost six inches in length and swollen to the size of the small bowel, was discovered. This was amputated and the opening

in the gut closed. The boy made a good recovery. The case is regarded as of interest for its bearing upon the etiology of intussusception.

Blomfield, J. E.: Similar Congenital Deformities in Members of the Same Family. (*British Medical Journal*, April 11, 1903, p. 847.)

The writer reports the cases of two children of a healthy, hard-working woman, one of whom had an imperforate anus, and the other had no opening into either rectum or bladder. In the first case the malformation was corrected by operation and the child lived for one month, death being due to marasmus not related to the malformation. The second child lived only a few days.

Van Hook, W.: The Treatment of Empyema by Continuous Aspiration. (*Journal American Medical Association*, May 30, 1903, p. 1,499)

The writer has treated 2 cases of empyema by the method of Georg Perthes for promoting the expansion of the compressed lung. Briefly stated the method consists in connecting a drainage tube, cemented in an air-tight manner in the thoracic opening, with a jar in which the pressure is kept constantly below the intrathoracic pressure by the action of a Bunsen's air-pump. In this way the expansion of the lung is favored, as the expansion obtained in expiration by the inflation of the compressed or collapsed lung from the sound one is maintained. The writer reports 2 cases, one of acute, one of chronic empyema, in which the method was employed with gratifying results.

Nicholson, H. B.: The Radical Cure of Inguinal Hernia in Early Infancy. (*British Medical Journal*, April 11, 1903, p. 841.)

Bassini's operation is recommended. Two points are emphasized. The vas is isolated only sufficiently to expose the neck of the sac; the distal portion is not touched. Secondly, to avoid the soiling of the dressings by urine, the penis is inserted into a wide rubber tube, which is secured in position by interrupted sutures at the base of the penis and empties into a receptacle in the cot or is attached to a lead gas pipe and allowed to drain into a receptacle on the floor.

Gibney, V. P.: Present Status of Congenital Dislocation of the Hip. (*American Medicine*, May 30, 1903, p. 870.)

The chief points of the article are summarized thus:—

(1) Do not rest content in a case of hip lameness in a young child until you have made a thorough examination of the patient and have obtained a full history of the case. (2) The diagnosis once established, aim to effect a reduction before the sixth or seventh year. It is fatal to postpone operation. (3) In patients beyond the age limit fortify yourself with a Röntgen ray picture in order to determine the exact position of the head, the shape of the same, and the relationship which the neck sustains to the shaft. (4) Do not make long attempts at reduction in patients over ten. (5) Bear in mind the dangers which Dr. Lorenz himself has warned against, namely, too extensive laceration of the soft parts, paralysis which may or may not yield to time and treatment, the fracture of the femur or the pelvic bones, rupture of an artery, sometimes the femoral.

Guttman, J.: A Case of Epidural Abscess of Otitic Origin. (*New York Medical Journal*, May 9, 1903, p. 836.)

Following influenza a girl, fifteen years old, developed otitis media. Several incisions were made in the drum membrane, but symptoms of mastoid disease and cerebral disease led to a further operation. In the course of this an epidural abscess containing about two ounces of pus was evacuated. The patient made a good recovery.

Dujon: Volvulus of the Stomach. (*Gaz. Médical. de Paris*, March 28, 1903, p. 109.)

This case refers to a boy five years old. The history obtainable is incomplete, there being simply mention of the fact that the boy had suffered for a year with his stomach and had vomited from time to time. When brought to the hospital he presented the classical symptoms of intestinal obstruction with very grave constitutional symptoms. An exploratory laparotomy, done the same evening, revealed an enormously dilated organ, occupying practically the whole abdominal cavity. The case was considered obscure and the incision was closed. The child died the next morning. At autopsy, the enormous organ, which proved to be the stomach, was found to be twisted to the extent of 180° around

the gastro-splenic omentum, which acted as a pivot. The pylorus was above and in front, the cardia was hidden behind, toward the left, and at about the same level. The gastro-splenic and greater omenta were completely torn. The writer tried to produce this condition experimentally, and found that it was first necessary to tear the two omenta, which seems to prove that in this case there must have been an abnormal length or laxity of the omenta. The symptoms then of this affection would be those of intestinal obstruction plus the impossibility of penetrating the stomach with a sound, and stoppage of the passage of food through the stomach.

Chase, H. M., Jr.: Report of Five Cases of Fracture of the Hip in Children. (*Boston Medical and Surgical Journal*, May 21, 1903, p. 552.)

The writer believes fracture of the neck of the femur in children much more frequent than is commonly supposed. Five cases are reported in adolescents from eleven to sixteen years of age. These cases emphasize the early age at which the fracture occurs, the possibility of the fracture following rapid increase in weight, the occurrence of fracture from slight trauma, and the possibility of a relatively slight disability following fracture of the femoral neck.

Diagnosis of fracture of the femoral neck cannot be made from any one symptom, and a group of symptoms may so vary in detail as to make the diagnosis extremely difficult. The examination should be made carefully and thoroughly, weighing the clinical history with the result of examination, verifying the possibility of conclusions thus reached by reference to the bony skeleton and to the Röntgen skiagraph, differentiating coxa vara, tuberculosis, septic arthritis, osteoarthritis, congenital anterior dislocation, strained ligaments and simple contusions.

Jegalkin, P. F.: Removal of a Prolapsed Spleen. (*Med. žinsk. Obzor.*, Vol. lix., No. 6, p. 415.)

A boy of five fell on the teeth of a harrow and sustained an abdominal wound through which the spleen prolapsed. After ligating its pedicle, the organ was removed. During the post-operative period pneumonia developed, yet the boy passed through

both ordeals seemingly unscathed. The wound healed by first intention and the child is now in excellent health.

HYGIENE AND THERAPEUTICS.

Monturiol, E.: Hypodermic Medication in Some Diseases of Children. (*Archiv. de Ginecopat., Obstetr. y Pediât.*, March 26, 1903, p. 112.)

The author urges the wider application of the hypodermic method in the treatment of the diseases of childhood. If properly administered, hypodermic injections present marked advantages in children. The author employed hypodermic injections in a series of children in dispensary practice.

In some of these, children with rickets, the author used an injection of sodium phosphate, ten centigrams being injected on every alternate day. The effects began to appear the eighth or tenth injection so that the mothers wittingly brought their children to the clinic for further treatment.

In tuberculosis injections of sodium cacodylate [cacodylic treatment in the original, no specific drug named] in doses of three centigrams, on alternate days, gave very satisfactory results. In visceral, pulmonary and articular tuberculosis these injections produced an improvement in the general health and in the local symptoms.

In anemias injections of the double chlorid of iron and quinin in doses of from one to two centigrams on alternate days gave very good results. The arseniate of strychnin was used with positive success in injections in paralyses and pareses in children. In acute bronchitis and in tuberculosis injections of eucalyptol, guaiacol, creosote, and iodoform produced results which were not as satisfactory as those noted with the other methods here mentioned. In whooping-cough injections of carbolic acid and menthol have been employed by Anguera.

The best sites for these injections are the nates, inasmuch as these regions are least sensitive and least exposed to accidents of all kinds.

Kilmer, T. W.: Whooping-cough: A New Method of Treatment. (*New York Medical Journal and Philadelphia Medical Journal*, June 20, 1903, p. 1,101.)

A stockinette band extending from the axilla to the pubes is

applied after the manner employed by an orthopedic surgeon before putting on a plaster-of-paris jacket. Two shoulder straps are employed to keep the band from slipping down. Upon this stockinette band a single width of elastic bandage is sewn, extending entirely around the body and covering the abdomen. This bandage is sewn on when very slightly on the stretch. Its purpose is to control the obstinate vomiting seen especially in nurslings. Most aggravated cases of vomiting have been seen to stop immediately upon the application of this belt. Medicinal treatment is also employed, especially the administration of a mixture of bromid of soda, antipyrin, and syrup of ipecac.

Moser, Paul: Treatment of Scarlet Fever with a Scarlet-Streptococcus Serum. (*Jahrb. für Kinderheilk.*, Vol. lvii.)

The serum used in the treatment of scarlet fever patients was derived from horses which had been treated with increasing doses of living cultures of streptococci derived from the blood of cases of scarlet fever. The cultures, which were often of different strains, were from three to six days old and were given at first intravenously, later subcutaneously. Only after months of treatment was the serum used.

For therapeutic purposes the serum was given subcutaneously. The dose of serum used was from 30 to 180 c.c. In all eighty-four patients were treated. Of these seventeen died. The mortality varied with the day of injection. Of 17 cases injected on the first or second day, none were fatal. The mortality of the cases injected on the third day was 14 per cent., and it rose constantly day by day to 50 per cent. for those injected on the ninth and tenth days. The most striking effect of the serum injections is the improvement in the general condition. Pulse and temperature both fall after the injections. The usual fall of temperature by lysis is replaced by a critical fall often to normal, which Moser regards as the best evidence of the influence of the serum. Nephritis appeared in 13 per cent. of the cases: Heubner gives 20 per cent. of nephritis in scarlet. The serum was also tried prophylactically in a number of cases. The favorable results of the use of this serum lend strength to the view that the streptococci are the cause of scarlet fever. Moser has no doubt that the streptococci of scarlet fever can be distinguished from those found in other affections, such as erysipelas, phlegmon, etc.

Kerr, C. Le G.: Causes and Relief of the Summer Mortality among Brooklyn Children. (*Brooklyn Medical Journal*, May, 1903, p. 221.)

For some years it has been known that the death rate among children has been constantly higher in Brooklyn than in Manhattan. Kerr summarizes the result of his investigation of the causes of this disparity as follows:—

To recapitulate, our chief needs are: (1) A rigid supervision of all cases of pertussis; (2) a recognition by the public of the dangers of a neglected case of measles; (3) cleaner streets; (4) more care in the preparation of the infant's food; (5) and by far the most important of all, a good, wholesome, clean milk supply, on which the physician can absolutely depend for his modifications.

One of the most striking facts in the article is that out of 382 children suffering from gastroenteric infections, 273 were being fed on condensed milk.

Foster, F. C.: Case of Acute Alcoholic Poisoning in a Child Aged Four Years; Treatment by Saline Injection; Recovery. (*British Medical Journal*, May 16, 1903, p. 1,142.)

A boy, four years of age, swallowed two ounces of neat whiskey. Forty-five minutes later he was insensible, temperature 97° F., skin cold and clammy, pulse irregular and uncountable; pupils dilated, corneal reflex absent. He was given strychnin sulphat grain $\frac{1}{30}$, the stomach was washed out, and as he was still in collapse, he received another injection of strychnin and digitalin, $\frac{1}{50}$ grain each, and a hot bath. One pint of warm saline solution was then given by rectum. The child rallied after this and half an hour later was able to take hot beef-tea by mouth. The writer is convinced of the efficacy of the saline solution given by rectum even in conditions of collapse.

Southworth, T. S.: Acute Suppurative Cervical Adenitis of Infancy. (*Journal American Medical Association*, May 30, 1903, p. 1,504.)

The great majority of the cases of acute suppurative cervical adenitis occur in children under two years of age. At this period of life the lymphatic system is especially vulnerable and the lymph nodes of the cervical region particularly liable to infection and suppuration. In the vast majority of the cases the in-

fection is dependent upon absorption from the nasopharyngeal space. The degree of inflammation in the nasopharynx seems to bear but little relation to the occurrence of glandular swelling. The group of lymph nodes affected may be either anterior or posterior to the sternomastoid muscle. The appearance is so characteristic that the diagnosis can be made by inspection. In the treatment it is important to delay incision till the thoroughly softened mass points with redness, so that only the skin need be cut through. The incision made must be only large enough to admit a small drainage tube and, if possible, is placed in some of the natural folds of the skin or in such a situation as to leave the smallest possible visible scar. After removal of the drainage tube a 10 per cent. ichthyol ointment favors absorption and is more comfortable than a dry dressing. Not all cases of this kind go on to suppuration. Cleansing of the mucous membrane of the nasopharynx limits absorption and favors resolution without suppuration. For this purpose the alkalin antiseptic tablets of Seiler have been employed, the solution being either poured into each nostril or injected in a spray. Potassium chlorate is given internally for its specific effect in the pharyngeal inflammations and for the accompanying fever tablets of aconite, belladonna and camphor are given. The writer has had most gratifying success with the abortive treatment.

Ostrowsky, S. E.: Tannoform in the Intertrigo of Infants.
(*Russki Vrach*, January 11, 1903.)

The author reports his favorable experience with tannoform in the intertrigo of small children. The drug was used either as a dusting-powder mixed with an equal part of starch, or as a 10 per cent. ointment with vaselin. When the latter is employed, the inflamed area should be washed with a solution of boric acid before applying the salve. Forty infants were treated in this manner, and the most obstinate cases, which had resisted all other applications, yielded promptly to tannoform. The results are ascribed to its astringent and antiseptic properties. No irritation was observed even in the youngest infants.

Monti: The Question of Serum Exanthemata. (*Archiv. f. Kinderhk.*, Vol. xxxv., No. 5, 6, p. 390.)

From his clinical experience Monti believes that serum exanthemata and symptoms of intoxication may be prevented by using

only such sera as are perfectly clear. In the case of a cloudy serum, it should be heated to 35° C., and only used if it becomes clear after repeated heating. This applies also to serum which has been kept for some time and has formed a flocculent precipitate. Serum of sufficient strength should be employed, so that not more than 15 c.cm. are required to give the number of antitoxin-units necessary in any special case. Should larger quantities of serum be required, it were better to heat to 50° C., as this temperature does not interfere with the therapeutic value of the serum, but does away with intoxicating substances which may be present.

Kobrak, E.: On Rheumatic Chorea and its Antirheumatic Therapy. (*Archiv. f. Kinderhk.*, Vol. xxxvi., p. 28.)

In 17 cases of chorea accompanied by a marked rheumatic history or by rheumatic symptoms, aspirin was given in 11. In 9 of these it worked well. Five other cases were treated with arsenic, and in but one was the result a good one. Consequently in the rheumatic cases aspirin is preferable to arsenic in the treatment.

In 7 cases with no history of rheumatism, arsenic was distinctly of value in five.

Aspirin lessens the rheumatic pains as well as the choreic movements. It does not prevent the development of cardiac lesions.

Edsall, D. L.: A Preliminary Communication Concerning the Nature and Treatment of Recurrent Vomiting in Children. (*The American Journal of the Medical Sciences*, April, 1903, p. 629.)

In 5 cases it was possible to demonstrate the presence of a marked acid intoxication, by the finding of acetone and diacetic acid in the urine. Large doses of alkali in the form of bicarbonate of soda proved very satisfactory, all previous treatment having been discouraging. It seems very likely that in many cases of recurrent vomiting, and perhaps in all that show acid intoxication, the primary disturbance lies in the digestive tract.

In order that the treatment should be effectual a readily diffusible alkali like sodium bicarbonate or citrate should be chosen, and extremely large doses given as soon as the first suggestion of an attack is observed, 100 grains, given as rapidly as possible, are probably a low limit. The urine should be kept

alkaline until the symptoms have disappeared. During the interval enough alkali should be given to keep the urine about neutral.

While it is extremely probable that recurrent vomiting is not always due to acid intoxication, and that all cases are not dependent upon the same primary disorder, it will be easy to determine in how many cases this form of intoxication is present, and how frequently the alkali treatment will prove effectual.

Griffith, Frederic: A Case of Nevus of the Scalp and Nose Treated by Hot Water Injections. (*New York Medical Journal*, May 2, 1903, p. 776.)

The patient was a girl seven months old, with a nevus of the scalp the size of a half-dollar, and one on the nose, covering that organ. The growths were treated by injections of water at a temperature of 180° to 200° F., after the suggestion of Wyeth. Repeated injections were required and resulted in the shrinkage of the growths. In neither instance was the skin surface damaged by the injections.

Dillard, Henry K.: A Case of Bromoform Poisoning. (*The Therapeutic Gazette*, April, 1903, p. 221.)

A child, sixteen months old, received two doses of four drops each of bromoform at an interval of two hours. Shortly after the second dose she suddenly became unconscious, with pin-point pupils, cold, clammy skin, and weak, irregular pulse. In this condition she remained three and one-half hours. Under vigorous stimulation the child at the end of that time suddenly roused from her unconsciousness, moved arms and legs, cried lustily, and appeared to be fully recovered. The bromoform administered was not the last in the bottle, six drams remaining, and could not therefore have been concentrated.

Hartshorn, W. M.: Feeding of Older Infants and Children. (*Medical Record*, June 27, 1903, p. 1,019.)

In the Nursery and Child's Hospital during the past four months all babies seven months and over in age, either artificially fed or nursed; and whose digestion seemed able to stand extra feeding, were given some stronger food. Flaked rice, cream of wheat, oatmeal gruel, farina, were all tried, but apparently the most satisfactory proved to be bread and milk. This was especially prepared. Stale bread which was twenty-four to forty-

eight hours old was used. The pulp of this bread was soaked in boiling water until thoroughly softened. The water was then poured off and a cup of milk added. This was boiled for three or four minutes. After being sweetened and cooled sufficiently, it was fed to the baby.

Since they have been giving the extra food for the younger children and infants, there has been a marked change in the general appearance of the weight charts, so much so that our experience adds to the proof that in addition to the other cereals, bread and milk, properly prepared, is most valuable as a supplementary food.

McClanahan, H. M.: The Treatment of Scarlet Fever. (*Journal American Medical Association*, July 4, 1903, p. 31.)

The author keeps all scarlet fever patients on a fluid diet for four weeks. The patient is to be kept in bed during the entire course of the disease. A spray or gargle of some mild antiseptic should be used. Baths are commended for the fever. If antipyretic drugs are to be used, sodium salicylate is to be preferred. Chloral hydrate is given to quiet restlessness, guarded by digitalis, if necessary. Irrigation of the nose and throat with warm saline solution is required in the septic cases; stimulants should also be given in these cases. For itching of the skin a 1 per cent. solution of carbolic acid is used.

Hare, H. A.: A Preliminary Note on Some Experiments to Determine whether Alcohol Does Good in Infection by Increasing the Bacteriolytic Power of the Blood. (*Therapeutic Gazette*, May 15, 1903, p. 283.)

A series of experiments were made to test the bacteriolytic power of the blood of patients, suffering from various disorders, before and after they had received ordinary medicinal doses of alcohol. The writer sums up the paper as follows: (1) The conclusions to be reached from this research are that the use of alcohol seems to have the power of combating infectious diseases by increasing the bacteria-destroying power of the blood. (2) While the experiments so far made are too few and too contradictory to determine the question, they indicate, so far as they have gone, that this effect is produced to some extent at least by an increase in complement.

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Original Communications.

A CASE OF PULMONARY OSTEOARTHROPATHY.

BY THOMAS MORGAN ROTCH, M.D.,
AND CHARLES HUNTER DUNN, M.D.,
Boston.

E. T., a boy, three years and seven months old, entered the Children's Hospital, on March 19, 1903.

The family history was negative.

Personal History.—He was born at full term, was healthy at birth and was breast fed. He had had measles and pertussis, and, with the exception of these diseases, had never been noticed to have had an acute febrile attack. He never had any pains or convulsions, and never had any trouble with his joints or limbs. The child sat up at ten months, but did not walk until he was two years old, and had always been rather backward.

He was sent to the hospital for continuous cough. For a year he had coughed, on an average, two or three times an hour, and for a month previous to his entering the hospital the cough had grown worse. At times he had been raising a yellowish sputum. He had had no night sweats, and had not lost in weight. The appetite was good and he did not have any digestive disturbance. Bowels had always been regular. For nine months previous to entering the hospital the parents had noticed an enlargement of the finger tips.

The physical examination showed him to be well developed and nourished. Skin of a good color. Did not speak plainly. Head rather more square than normal, fontanel closed. Twenty teeth. Tongue normal. Examination of the lungs showed flatness on percussion over the entire left front of the chest. There was marked dullness over the back of the left chest, but no absolute

flatness. Throughout the left side of the chest, front and back, there was loud bronchial breathing, bronchophony, and increased tactile fremitus, and there were numerous crackling râles. Ex-



PHOTOGRAPH OF THE PATIENT: A CASE OF PULMONARY OSTEOARTHROPATHY.

amination of the heart showed the impulse in the fifth left interspace in the mammary line. The cardiac area was not enlarged. The cardiac sounds were regular and of good quality. A systolic murmur was heard over the entire precordia, loudest at the second left interspace. The pulmonary second sound was not notably accentuated. The abdomen was very prominent and tympanitic, but there was no tenderness, and nothing abnormal was detected. The spleen was palpable just beneath the costal margin. The liver was not enlarged. There was no notable enlargement of the lymph nodes. The reflexes were normal. There was a marked enlargement of the tips of the fingers of both hands, giving a flat club-shaped appearance, and this enlargement was also

noticeable in the distal phalanges of both great toes. A slight rosary was present, but no special enlargement of the epiphyses. Examination of the blood showed: Hemoglobin 70 per cent.; leukocytes 9,600; erythrocytes 4,320,000. A differential count of 500 leukocytes showed: Polymorphonuclear cells, 68 per cent.;



PHOTOGRAPH OF THE HANDS IN A CASE OF PULMONARY OSTEOARTHROPATHY.

large basophiles, 4.8 per cent.; small basophiles, 23 per cent.; eosinophiles, 2.6 per cent.; mast cells, 1 per cent.; myelocytes, .4 per cent. During the count there were seen no erythroblasts. The erythrocytes were normal except for a slight achromia.



RADIOGRAPH OF THE HANDS IN A CASE OF PULMONARY OSTEOARTHROPATHY.

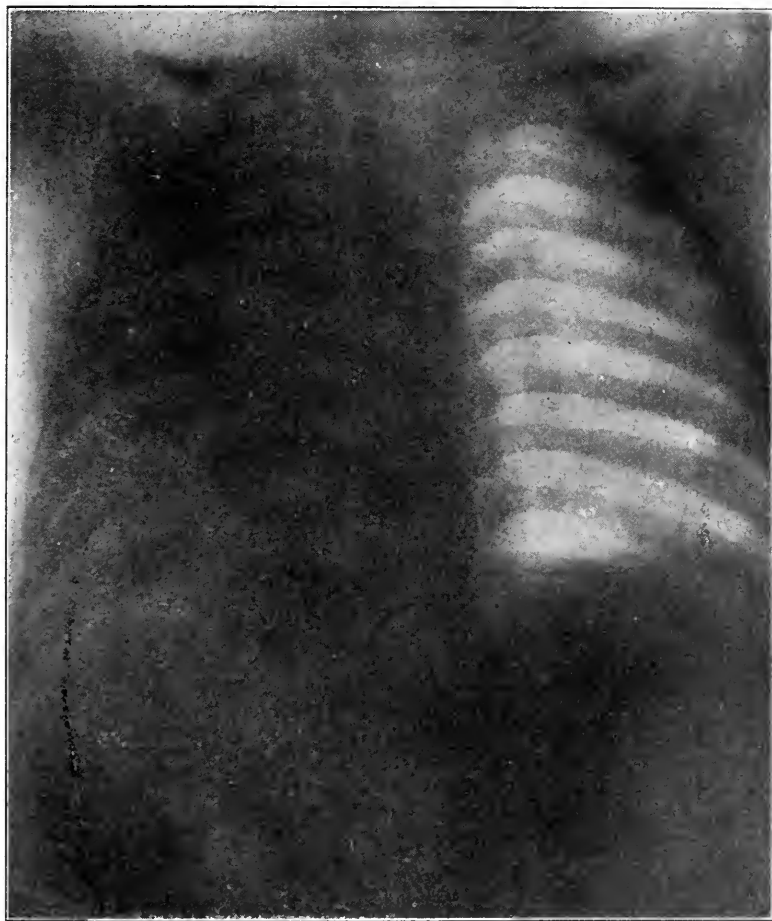
Examination of the urine showed: Color normal; reaction acid; sp. gr. 1.023; urates increased; albumin slight trace; bile o; sugar o. Sediment small in amount and showing an occasional small round cell and a rare hyaline cast.



RADIOGRAPH OF THE FEET IN A CASE OF PULMONARY OSTEOARTHROPATHY.

Examination of the sputum on March 19th, showed it to be purulent and to be loaded with small bipolar gram-decolorizing bacilli, both intra- and extra-cellular. Culture made on blood serum, and on plain agar gave a few colonies of gram-staining

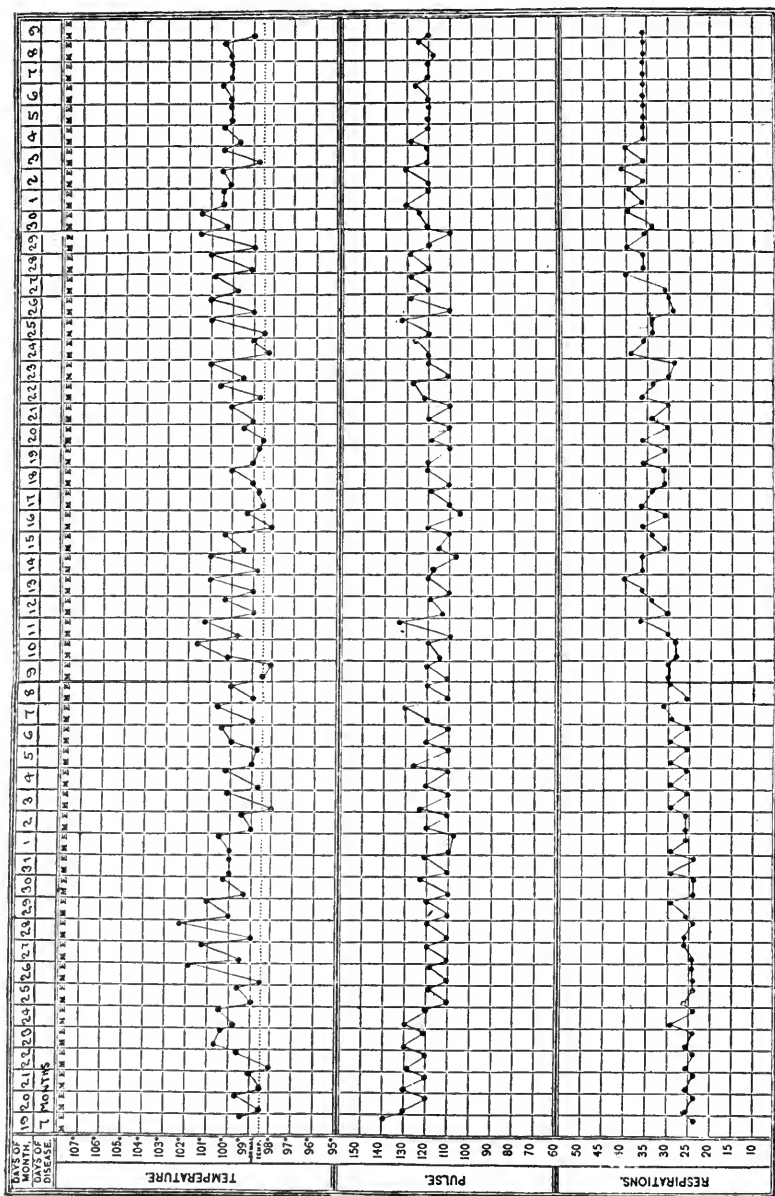
cocci, but no bacilli. A culture on blood agar gave numerous, very small watery colonies. Cover glass preparations from these colonies showed small gram-decolorizing bipolar bacilli. (Pfeiffer's bacillus of influenza.)



RADIOGRAPH OF THE CHEST IN A CASE OF PULMONARY OSTEOARTHROPATHY SHOWING CONSOLIDATION OF THE LEFT LUNG.

Thoracentesis on the left side showed no fluid, but a solidified lung. A tuberculin test was made on March 25th, and again on March 28th, with negative results.

During the following two months the child had coughed less



TEMPERATURE CHART OF A CASE OF PULMONARY OSTEOARTHRITIS.

and there was no expectoration, the physical signs remained unchanged. (See chart.)

On April 11th, sputum obtained from vomitus was examined and found to contain numerous influenza bacilli, free and in the leukocytes. A few staphylococci and rare streptococci.

The accompanying photographs are x-ray prints taken of the hands, feet and thorax. The x-rays show consolidation of the left lung, and a condition of the distal phalanges which correspond to the description which is given of pulmonary osteoarthropathy, that is, an enlargement of the entire distal phalanges, involving primarily the bone itself.

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DISCUSSION.

DR. WEST.—For some time I have had under my care a case similar to Dr. Rotch's and I wish to take this opportunity of recording it.

This child first came under my care when she was three years and one month old. At this time she showed slight clubbing of her finger ends, but this was thought to be due to the habit of nail-biting, to which she was addicted, especially when excited. The father at forty-three years shows signs of premature age. The mother is thirty-three and well. The paternal grandmother died with tuberculosis. The paternal great-grandmother died at ninety-six after coughing for twenty years. About a month before the

child began to cough she was under the immediate care of this old woman. There are two other children living, and six dead, all before they were a month old. The child has never been well; from her birth until her second year she would have severe crying and screaming spells, for which neither cause nor remedy could be found. These would occur at irregular and frequent intervals and gradually lessened toward the end of the second year. When eight months old she began to have a cough. This was dry, hoarse, and ringing and was worse and almost continuous after even slight exposure. After coughing this way for eighteen



HAND OF A CASE OF PULMONARY OSTEOARTHROPATHY.

months she would expectorate some mucus after particularly hard coughing spells and would occasionally vomit from one to two tablespoonsful of thin, somewhat offensive mucus. When two years and nine months old she had a severe attack of measles; directly afterward the cough became harsh and hoarse and more continuous again for several weeks. At this time she was first seen by me. She was having the screaming spells again and a very severe cough. She was undersized, looked dull and stupid and her skin was sallow. She sat stooped forward with her back bowed. Her chest was symmetrical, rather narrow above and bulging below. No dullness. All over her chest and back, more so

over her right back, were coarse bubbling râles. The heart and other organs were normal. A slight clubbing of the fingers was noticed; also, slight redness and roughness of the skin over the tips. As was mentioned, this was thought to be due to nail-biting, although the habit was not a pronounced one. She was now three years old. She was seen every two or three weeks for the next few months; her general condition improved very much; the lungs were considerably better; and the finger tips had not changed perceptibly. When she was four years old the fingers and toes were very much clubbed, the skin over the distal phalanges a bright pink and rough, and the nails short and broad. There was a slight stoop in her back, but no kyphosis. There was not, nor ever had been, any enlargement nor tenderness of any joints or bones. She has improved greatly in her general condition and disposition and the râles are smaller and fewer, the cough less frequent and severe. Four to six times a year she has a feverish attack lasting from twelve to forty-eight hours; outside of the high temperature and quickened respiration and circulation there are no symptoms. The râles disappear for the time and the breathing is harsh. The temperature drops quickly and she is soon herself again. In June of last year she had a severe attack of pleurisy with serous effusion. The effusion was absorbed and the disease had no perceptible effect on her condition either way. In the year past (the second under my care) the clubbing has increased slightly. (See photograph.)

With but brief intervals she has taken small doses of creosote regularly these two years; mostly by the mouth, and at times by inunction as recommended by Dr. Rachford.

The Teaching of Pediatrics in Italy.—There is a professor of the diseases of children at the universities of Naples, Florence, Bologna, Rome and Padua, each of whom is in charge of a special clinical department. It is believed that a professor of pediatrics will soon be added to the faculty of the Genoa Medical School. This will probably be Dr. Iemma, who is already giving instruction in pediatrics there. In Parma, Dr. Cattaneo is teaching at the Children's Hospital, and Dr. Bordonare has a ward in the General Hospital at Catania. In Turin, Dr. Muggia has charge of the department for children at the Policlinico, and Dr. Mesi is giving instruction at the Foundling Asylum; at Palermo Dr. Carini gives a course at the Children's Hospital, and Dr. Gagnoni, of Florence, annually gives a course at Siena. At Florence the professor in charge is Dr. Mya, at Rome Dr. Concetti, who together edit the new journal of pediatrics called *La Rivista di Clinica Pediatrica*.—*Philadelphia Medical Journal*.

A CASE OF CHONDRODYSTROPHY FETALIS.*

BY J. PARK WEST, M.D.,

and

W. O. S. PIPER, M.D.,

Bellaire, O.

The following history is that of a typical case of chondrody-strophy fetalis and corresponds to "Type D" of Ballantyne's fetal



A CASE OF CHONDRODYSTROPHY FETALIS
FOURTEEN MONTHS OLD.

bone diseases in his "Antenatal Pathology." Since attention has been called to this condition again quite a number of cases have been published. In addition to this case there have been in our vicinity five of these dwarfs; two of them, now adults, were born in the county. Another, now in Bellaire, a woman born in Germany about sixty-five years ago, does a thriving business as a fortune teller, and has a family of normal children and grandchildren.

Baby Wilhelm was born in Bellaire, August 16, 1901, and the examination these data are based on was made when she was fourteen months old. She is the third of three children, all females. The oldest died when six months old, with pneumonia; so far as we were

able to ascertain she was a healthy child. The second is three and one-half years old and healthy. The grandparents are all living and well. No child like this has been known in either

* Read at the meeting of the American Pediatric Society, Washington, D. C., May 12, 13 and 14, 1903.

family. The parents were both born in this country. The father is forty years old and is very tall and slender. The mother is twenty-five years old and is slightly below the medium height. She had no sickness, unusual worry, or privation during her pregnancy. The first stage of labor was seven hours in duration, the second but a few minutes, and in every way normal. There was no hydramnios.

The child was very fat and chubby at birth and two peculiarities were noticed and remarked at the time. The first was the large round head that showed no effects of its passage through the birth-canal. The second was the marked shortness and thickness of the hands and fingers.

She has always been nursed by the mother, has grown very slowly, and from her birth has been very cross. She cut her two lower central incisors at the eighth month and the four uppers at the twelfth month and none since. When five months old a slight angular curvature of the lumbar spine was noticed. Since she was eight months old she has occasionally sweat about the head. Her only other sickness has been three short attacks of summer bowel trouble, not severe. The heart and lungs are normal, and her mind differs in no way from that of an ordinary child.

From her twelfth to her fourteenth month she was under the care of Dr. Piper when she was seen in consultation by Dr. West. A look at her head suggested rickets; the rest of her body suggested cretinism; a careful examination and a comparison with a normal child of the same age shows it to be a case of chondrodystrophy fetalis.

Although the child is quite thin she has a general stumpy appearance and the extremities look stunted. Her head is very large ($19\frac{3}{8}$ inches) and covered with a full growth of soft hair. The anterior fontanel is open, slightly depressed and measures 2x2 inches. The frontal suture is widely open and the sagittal also, but to a lesser extent. No craniotabes. The frontal and parietal eminences are prominent, and the forehead and sides show but little bulging. The face is likewise large and is proportionate with the head. The bridge of the nose is very much depressed and the point turned up. There is slight exophthalmos. The ears are very large and well formed. The mouth is large and closed and the lower jaw rounded. The tongue is of the usual size and not protruded. The neck is extremely short and the ster-

num set very high. The thyroid cannot be felt. On each side of the neck, in each axilla, and on the left arm, are pads of soft fat $1 \times \frac{1}{2} \times \frac{1}{2}$ inch in size. The chest has a rather square formation, the sides being almost straight and the sternum sloping but little. There is no beading of the ribs. The abdomen is not unduly full but looks very long. The liver extends 1 inch and the spleen $\frac{1}{4}$ inch below the border of the ribs. Except for a kyphosis of the five lumbar vertebra (noticed at the fifth month) the spine is straight. The body looks long for the size of the child and seems, on account of the high position of the sternum, to be continuous with the head. There is about two and one-half times as much skin as the baby has use for. This superabundance is especially shown on the extremities and lower half of the body where the skin is loose, thick, soft and of a dull muddy color, and not at all irritable. In other places it is not quite so plentiful, thinner and irritable, slight rubbing producing an erythematous blush. There is no hair on the skin. The muscles are thin and soft. At the middle of the arms, at the ankles, and an inch above the ankles are depressions encircling the limbs as if a string was tied about them. The joints are not enlarged nor so prominent as usual in a thin baby and the motions are not restricted. The bones of the extremities are short, as the measurements will show, and there is almost no curving. The bones are thick, feel unusually hard, and the lines and prominences sharply marked. For instance, the external ridge of the fibula is very distinct, running up to a styloid process that reaches higher than the head of the tibia. With the arms extended along the body, the distal end of the palms reach only to a point opposite the umbilicus. When she is lying quietly her legs and feet turn out, the feet resting on their outer border. She uses all her extremities well but has never tried to put any weight on her legs. The feet are "pudgy and mole-like." The hands are short and stubby; the short, thick, pointed fingers were so noticeable at birth as to have attracted the attention of the family; this is partly due to the lax redundant skin, and, to a larger extent, to the pronounced thickening of the bones, especially of the phalanges. With the hand closed there is no arch at the metacarpo-phalangeal joints, the metacarpal bones appearing of the same length. The hand of this child presents another peculiarity shown very distinctly in the photograph. Instead of the fingers lying together the index and middle fingers point to the radial side of the hand while the ring and little fingers point to the ulnar side. This

was first pointed out by Dr. John Thomson and is considered by him and others who have studied the condition to be pathognomonic of chondrodystrophy fetalis. (See cut.)

This child was seen and examined six months later, when she was twenty months old. Her body had grown $\frac{1}{2}$ inch; her extremities none at all. Her weight increased $4\frac{1}{4}$ pounds. She had cut seven more teeth, now having thirteen. The fontanel has not closed any more and the kyphosis has not changed. She makes no attempt to sit alone and rarely tries to change her position. She has ceased being so cross and lies contentedly most of the time. Otherwise her condition and appearance is as described above.

So far no treatment used has been of any special benefit. Dr. Piper had her on thyroids and cod-liver oil for two months. The addition of suprarenal gland, a regulated diet, bathing, and fresh air made no improvement.

The main points wherein this child differs from a rachitic and from a normal child are in the length and form of the bones. Compared with a normal child of the same age this one is $5\frac{1}{2}$ inches shorter from vertex to sole, $\frac{1}{2}$ inch shorter from top of sternum to pubes, $\frac{1}{2}$ inch from vertex to anterior superior spinous process, and 5 inches from anterior superior spinous process to sole. From the acromion to wrist it is $2\frac{1}{2}$ inches shorter, the hand and wrist 1 inch shorter, the thigh $2\frac{3}{4}$, and the leg 3 inches shorter. The clavicle differs from the other long bones in volume and length; it is long and thin and causes a marked projection of the upper bone of the sternum. The bones are thickened, are distinctly hard, and the anatomical landmarks as distinctly made out as in a thin adult, thus giving one the impression of a small matured bone. They do not have that uniform smoothness of the rachitic bone, nor have they lost the normal form but rather have gained the adult form thus early. The circumference of this child's head is 1 inch greater than the other's but the diameters of the two are about the same. The shape of the head (which is not typically rachitic) and the sweating of the head are the only rachitic features present. There is only that beading of the chondrochondral joints to be felt in every thin child and there is no enlargement of other joints. The size of the face is proportionate to the head, both being large, and not the large head and small face of rickets.

A number of papers on this subject state that two breeds of dogs, viz.: dachshunds and bassets, are examples of this disease.

I have here the bones of the legs of a dachshund that show this statement, at least in this particular instance, to be a mistake. Dr. Carl O. Folkens, of Cleveland, O., who breeds dachshunds, kindly sent us a healthy, half-grown thoroughbred specimen that the bones might be shown with this paper. In most of the bones, during their preparation (boiling without chemicals), the epiphysis and diaphysis became separated, in others they were easily taken apart, while in these where they are still adherent they can be separated with ease. There is in none of the long bones a premature ossification of the epiphyseal cartilage nor an ingrowth of the periosteum. You will also notice that instead of being heavy and dense the bones are light and thin; this is especially noticeable in the long bones that have been sawed.

MEASUREMENTS OF A CHILD WITH CHONDRODYSTROPHY.

	Chondrodystrophy.	Healthy.
Length	24½ inches.	30 inches.
Weight	13¾ lbs.	21½ lbs.
Neck (circumference)	8 inches.	8 inches.
Chest (at nipples)	14 "	17½ "
Abdomen (at umbilicus)	15 "	18 "
Pelvis (at crests)	12½ "	16 "
Head:—Circumference	19¾ "	18½ "
Ear to ear	11¼ "	11 "
Glabella to occiput	14 "	13 "
Diameters:—Bitemporal	4½ "	4¾ "
Biparietal	5¼ "	5¼ "
Antero-posterior ...	6½ "	6½ "
Glabella to occiput .	6 "	5½ "
Vertex to ant. sup. spinous process	15½ "	16 "
Ant. sup. spinous process to sole .	9 "	14 "
Sternum to pubes	10½ "	11 "
Sternum to umbilicus	8 "	7½ "
Umbilicus to pubes	2½ "	3½ "
Trochanter to condyle of femur ..	3¾ "	6½ "
Fibula	3¼ "	6 "
Tibia	3 "	6½ "
Foot (instep 4½ and 4¾)	3½ "	4½ "
Acromion to wrist	6½ "	9 "
Humerus	3 "	4½ "
Ulna	3 "	4¾ "
Hand and wrist	1¼ "	2¼ "

PROPHYLACTIC MEASURES TO PREVENT THE SPREAD OF VULVOVAGINITIS IN HOSPITAL SERVICES.*

BY HENRY KOPLIK, M.D.,
New York.

One of the most annoying scourges of a children's hospital service is the vulvovaginitis of young girls, anything, therefore, that can be done to prevent an outbreak or the spread of this affection in hospitals, is of the greatest value and importance. Not only has this disease certain repugnant features but with the vulvovaginal tissue once affected, the little sufferer becomes exposed to the dangerous consequences of the disease and a menace to others. There is no affection of infancy and childhood which resembles so closely the exanthemata in its manner of spreading from child to child, without leaving any clue as to how the spread of the disease is initiated, or accomplished. I think we may dismiss, without further cavil, the contention that the affection may spring up spontaneously in a children's service, although this is occasionally hinted at. There must be an acute or chronic case preceding an outbreak of the disease; in other words, there must be a source of infection. The exact method by which a healthy child is infected by another child suffering from vulvovaginitis, is still unknown. I might state that nothing in all the volumes that have been written on the subject gives us any positive data. One thing stands out prominently, that the mucous membrane of the parts affected in children of both the male and the female sex, is strongly predisposed to this infection, that is, the gonorrheal form of which I am speaking.

It has been supposed that the infectious material becomes implanted on the parts by the fingers of the nurse, or conveyed by the napkins, by the thermometers, the catheter, or, in fact, by any infected article. It is, however, certain, though strange, that a pure culture of the gonococcus rubbed on the parts will not always cause a vulvovaginitis. Epstein made these very experiments and failed to reproduce the disease. We must, therefore,

* Read at the meeting of the American Pediatric Society, Washington, D. C., May 12, 13 and 14, 1903.

conclude that the secretions themselves are in some way carried from patient to patient.

In a children's service there are two forms of gonorrheal discharge which are exceedingly prone to give rise to vulvovaginitis, urethritis, or proctitis. One is the vaginal discharge, the other is the rectal.

Of the vaginal discharge, which is more apt to be the starting point of an epidemic, the chronic scanty discharge is much more to be guarded against, because less evident, than the acute, profuse discharge, which is easily seen by a nurse. As an illustration, let me cite a case in point.

A child in my hospital ward, suffering from chronic cardiac disease, was found to have an acute vulvovaginitis. On her discharge from the hospital her vulvovaginitis was practically in the condition of the gleet stage of a gonorrhea. Some days there would be a very slight, thin, mucous discharge; at other times there was no discharge. This patient was readmitted three months later for the treatment of her cardiac affection. A careful examination of the mucus of the vagina failed to reveal any gonococci, but I directed that the child be carefully isolated. I have seen such cases show a profuse discharge, with the return of the gonococci, without, apparently, any provocation. We see the same manifestations in the adult subject suffering from apparently cured posterior urethritis.

Another case which illustrates how the utmost watchfulness must be exercised over these patients is that of a child of eight years recently admitted to my ward without a sign, on repeated and careful examination, of a vaginal discharge. After having been in the hospital two weeks a scanty mucous discharge appeared. Examination showed this discharge to be gonorrheal. Inquiry revealed the fact that this child had suffered from a vaginal discharge some time before her admission, which had disappeared to reappear weeks later. Had it not been for the system, by which each child in my service is practically isolated from its neighbor, these 2 cases would have been the starting points of two epidemics of the disease. Before the present system of isolating one child as much as possible from the others was instituted in my ward, a case similar to either one of the above was frequently the cause of infection in quite a number of other children.

The rectal discharges are none the less dangerous and any

purulent discharge from the rectum of a boy or girl should be immediately examined for gonococci. This may seem extreme, but the following case, which is only one of many, will illustrate my point.

A boy, eight years of age, was recently admitted to my ward suffering from a lobar pneumonia with a slight amount of pleuritic effusion. A few days after admission it was noticed that the boy had a discharge of blood and mucus, at times mingled with pus, from the rectum. There was no pain but a slight rise of temperature, due to the pleurisy or pneumonia, caused the staff to think of a possible dysentery. I directed, however, that the rectal discharge be examined for gonococci and the boy isolated. The mischief, however, had been done and in a short time three children developed vulvovaginitis. The boy's rectal discharge was gonorrheal and had existed before admission to my service.

Another case is illustrative. A boy, four years of age, was discharged from my service convalescent from pneumonia. In four days he returned with a history of periproctitic abscess. He was admitted at night and in the morning when I was told that the patient had a rectal discharge I directed that he be isolated and the discharge be examined for gonococci. This was done, but in this case, also, the boy was the starting point of an epidemic in which seven girls in my service were infected with vulvovaginitis. This patient had left my ward well and without any rectal discharge. There was no case of vulvovaginitis in the ward during his stay. He returned to the hospital with his infection. In the uncertainty of the night nursing the infection of the other children occurred.

How is vulvovaginitis, proctitis, or urethritis conveyed from patient to patient? I have made this question one of close study and find that in a hospital service there are many avenues by which this affection may be communicated to the patients. All utensils, such as bed pans, catheters, douche nozzles and thermometers, are the first source of infection. A second prolific source is the linen and rubber sheets, the diapers, the underclothing, the wash rags and basins and, finally, though not the least, the bath tubs. During the past five months no case of vulvovaginitis or urethritis has arisen in my service, and I attribute this fact to the system of complete isolation of one child from the others carried out in my ward. Every child admitted to my service is now examined as to the presence of a vaginal, urethral, or rectal discharge. Not only are the girls examined externally but a culture is taken and a spread made of the va-

ginal secretions. No child is bathed in the common bath tub until pronounced free from vaginal, rectal or urethral discharge by the house physician. If there is any suspicious discharge from the vagina, urethra or rectum the patient is isolated and put under certain restrictions to be mentioned. Every female child on admission to the regular ward is given an individual basin, comb

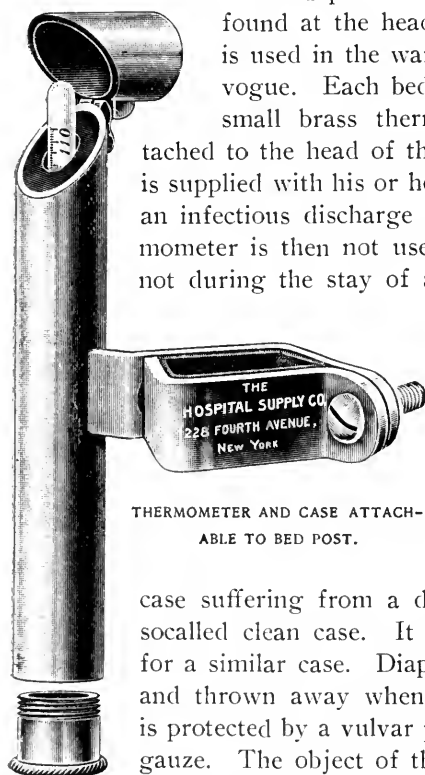
and bed pan. The basin and comb are to be found at the head of each bed. No bar soap is used in the ward, liquid soap alone being in vogue. Each bed is fitted permanently with a small brass thermometer case (see cut) at-

tached to the head of the bed and thus every patient is supplied with his or her own thermometer. Should an infectious discharge appear at any time the thermometer is then not used on other children, at least not during the stay of any little patient in the hos-

pital. After discharging a patient the thermometer is carefully cleansed and placed for a time in 2 per cent. formalin solution. The thermometer case itself is boiled in soda solution for one hour. A bed pan once having been used on a

case suffering from a discharge is never used on a so-called clean case. It is disinfected and used only for a similar case. Diapers are made of cheese cloth and thrown away when soiled. Every female child is protected by a vulvar pad made of several layers of gauze. The object of this is to avoid contact of the vulva with hospital linen. When hospital diapers

were in vogue in my service vulvovaginitis was quite prevalent, when they were discarded vulvovaginitis became at once infrequent. I therefore believe that the ordinary laundry washing does not sterilize the linen, it only cleans on the surface and the steam does not reach all the interstices of the fabric. Every child in my service is supplied with its own utensils, and no utensils, such as thermometers, catheters, combs and basins, are kept in a common room where they are likely to become mixed, but they are placed at the bedside ready for use. The thermometer is,



THERMOMETER AND CASE ATTACH-
ABLE TO BED POST.

after use, cleansed carefully and replaced in its own case at the bottom of which is a formalin tablet, the fumes of which constantly bathe the instrument.

If a patient is found affected with a vaginal discharge the bed is surrounded with a red bandage to warn the nurses of the presence of an infectious discharge. The bedding, rubber sheets, draw sheets and all the linen of the patient are marked V. D. (vaginal discharge). This linen is never used except in a similar case. Soiled linen is first sterilized in the hospital sterilizer before going to the general laundry. Bed pans, catheters, nozzles and douche apparatus are all marked with the name of the patient and kept apart from similar utensils in the ward. The nurse who attends the patient is not allowed to take the temperature or touch the genitals of any other patient in the ward. It will thus be seen that I have instituted a most complete system of isolation by which each little patient in my service is protected from fellow patients. Since this system has gone into use, should a vulvovaginitis or rectal discharge appear it cannot spread easily, if all the various safeguards that I have marked out are maintained. It may seem to some that I have been at too much pains concerning a very simple matter. Since, however, I have seen several deaths result from an infection of the peritoneum resulting in this disease, I have been satisfied in my own mind that my studies were not in vain. Moreover, the very evident nonchalance with which some physicians look upon vulvovaginitis is simply a reflection of their lack of knowledge of the serious complications and sequelæ of this affection. Years ago Sanger pointed out that many cases of salpingitis in young girls and sterility in later life could be traced to this infection in early childhood. Vulvovaginitis, therefore, if it arises in a hospital service and spreads in epidemic form only proves to my mind a laxity in precautions necessary in every service devoted to the treatment and management of diseases of infancy and childhood.

692 MADISON AVENUE.

DISCUSSION.

DR. CHAPIN.—We take a culture from every female child before entrance to the Babies Wards of the Post-Graduate Hospital, and we have found that in many cases in which we had not suspected specific vulvovaginitis, it does exist. So, I think the

precautions suggested by Dr. Koplik are very valuable. It is the bane of hospitals for little children that such things exist, and they happen much oftener than we think, for some clinical manifestations are very difficult to make out. We have sometimes found, on close examination, that the parts which showed very little evidence of vulvovaginitis, had the gonococcus present.

DR. COTTON.—I am very much interested in Dr. Koplik's paper because recently I had a very trying experience in the Children's Ward of the Presbyterian Hospital. Our service is divided into quarters, my quarter beginning in July and extending through August and September. During that time the prevalence of typhoid fever kept the ward, which would accommodate about twenty-five patients, pretty full. There were 16 or 17 cases of typhoid at one time. No case having a discharge from the vagina or urethra occurred during my service of the three summer months, with a single exception of a surgical case reported to be a case of rectal ulcer. When I returned to the service three months later the ward was quite full of vulvovaginitis cases. In all we had 14 cases; but we have gotten rid of it.

The remarks of Dr. Koplik have proved particularly interesting to me. My colleague, Dr. Dodson, who had charge of that ward during most of the time that this infection developed, is present and I would like very much to ask permission for his experience at the beginning of that epidemic.

DR. DODSON.—I assure you I appreciate the courtesy of the invitation, and I have been especially profited by Dr. Koplik's paper. It is of great importance that attention should be called to this infection of vulvovaginitis in children and to the necessity of taking extreme precautions, for I judge from other physicians in charge of wards and children generally, that the importance is not fully appreciated and it is not at all uncommon to look upon the infection as a trivial affair.

One who has seen a few cases of gonorrheal peritonitis develop from vulvovaginitis and appreciates the disastrous consequences that are very apt indeed to follow from such an infection, can certainly not fail to realize the importance.

Two or three things occur to me from our experience in the Presbyterian Hospital, and one is that in this matter we are absolutely at the mercy of the nurse. It must be in the vast majority of the cases through the carelessness or lack of knowledge of the nurse that this infection is spread, and that calls attention to the importance, as it seems to me, of a somewhat better plan of training nurses than that now in vogue. Great as is the improvement in the character of the nurse now from that of fifteen or twenty years ago, there is still much room for improvement, and I think one of the principal defects is to fail to train the nurse in the fundamental principles on which her art is based, especially that of the bacteriology. It seems absurd that we should expect the nurses to learn bacteriology from a few lectures without any prac-

tical experience, and I believe that we may never have this corrected until the nurse is given from six months to a year's training in a laboratory before beginning her work. After she attempts a few cultures she begins to realize the importance of care.

Then the disinfection of the ward is frequently left to incompetent persons. It seems to me that there ought also to be in connection with every hospital some person who does all of that sort of work in a thoroughly scientific way and is responsible for it; who knows the exact amount of formalin gas per cubic foot of space and is perfectly certain that the windows and doors are properly sealed. The subject is one of very great interest.

We found that the usual injections are not sufficient. The remedies for the cure of such a discharge must be kept in contact with the parts almost constantly.

DR. DORNING.—In searching for the cause of a vaginal discharge, in some cases, in addition to taking a specimen for a culture, it is well to examine further for a foreign body in the vagina. I have seen a number of cases in which that accounted for the discharge. One case in particular, which had gone through the hands of four very excellent practitioners, showed the presence of a corroded bone button which had been removed from the child's under garments.

The Treatment of Acute Infectious Diseases.—In the treatment of sepsis and the infectious diseases, Wernitz (*Therapeutische Monatshefte*, January, 1903) gives enemata of normal salt solution, not only to allay the dryness of the mucous membranes, etc., but to increase the excretion of all secretions, thus increasing the elimination of infectious material. This is much less painful than hypodermoclysis or the intravenous infusion of normal salt solution. Nor is there any danger to the heart from enemata. He uses a Hegar irrigator with a lukewarm 1 per cent. solution. The irrigations are continued until clear water returns, the lower bowel being thoroughly cleansed out. This takes about an hour and is repeated in an hour or two. As much as one liter of fluid is used each time, some of it being absorbed after each irrigation. Great improvement follows if the treatment is continued for some time. All symptoms disappear, and the patients beg for a repetition of the enemata, as they cause great relief. In acute sepsis he gives ten irrigations; in less severe cases fewer enemata will be necessary. Wernitz gives the organism as much fluid as it can absorb. There is but one objection to this treatment, the great amount of time needed.—*Philadelphia Medical Journal*.

A STUDY OF TWO CASES OF INTUSSUSCEPTION. (BOY SIX YEARS, GIRL NINE YEARS OF AGE.)*

BY FRANCIS HUBER, M.D.,
New York.

In acute cases, with classical symptoms, a diagnosis of intussusception does not, as a rule, offer any great difficulty, provided, of course, the possibility of its occurrence be kept in mind. In discussing the subject it is well to recall that first, the most frequent cause of acute intestinal obstruction in infants is the lesion now under consideration; second, the diagnostic symptoms are due to the existing obstruction or strangulation. A study of a series of cases shows that the younger the child the earlier symptoms develop.

In older children the picture is less pronounced. Invagination in them does not necessarily produce, or give rise to, early obstruction and strangulation, consequently the characteristic signs are more or less modified or even delayed. In chronic cases acute manifestations are absent. In fact the entire process is characterized at times by "extreme latency of symptoms." The presence of a tumor, possibly some slight hemorrhages at intervals, extending over long periods, may be the only evidences. Cases are reported in literature in which a tumor could be mapped out and in which pains recurred in paroxysms at varying intervals for months and months. Occasionally vomiting would occur. At no time, however, was there any interference with the action of the bowels, nor was any blood, mucus, or other abnormality, noticed in the movements.

The anatomical variety which favors a chronic course, is that in which the apex of the intussusceptum is formed by some part of the cecum, the cecocolic form, or when the colon itself is involved.

One form of the so-called prolapse of the rectum is practically a chronic intussusception of the upper into the lower part of the bowel.

* Read by title at the meeting of the American Pediatric Society, Washington, D. C., May 12, 13 and 14, 1903.

Within a period of a few months, 2 rather unusual cases have been met with in practice. In the first, the diagnosis was not made until after the abdomen was opened. In the second a positive diagnosis was arrived at and confirmed at the operation.

For the following history I am indebted to the attending physician, Dr. Joseph Huber.

CASE I.—Nathan U. seen for the first time Sunday, Jan. 25, 1903. (The prior history having no bearing on the present illness, is therefore omitted.) The child looked well; temperature was 99° F.; he complained of pain in the abdomen; the pain was paroxysmal in character and not localized in any special area. The mother was positive in her statements that the bowels had moved twice daily up to the previous twenty-four hours. Codein. $\frac{1}{8}$ grain hourly, high injections and cold or warm applications were advised.

January 26th; restless night, temperature 99° F., same paroxysmal pain, slight resistance of right rectus, bowels moved twice after injections, A.M. and P.M.

January 27th; temperature 99.6° F., condition the same; restless with pain in paroxysms all night.

At 11:30 A.M. I saw the boy in consultation for the first time. General condition excellent, pulse good and about 80 to the minute. Respiration natural and not accelerated. Tongue clean, no odor to breath. Heart and lungs negative. Abdomen: both recti tense, no pains in the right iliac fossa; palpation negative, as was also examination per rectum. No retention of urine or delay in the urination. No evidence of shock or collapse. The patient insisted upon getting out of bed to use the chamber. Between the paroxysmal pains he would play with his toys and took great pride in blowing a fish horn. No blood or mucus in the stools at any time.

Symptoms.—Pain referred to the umbilical region and tenderness in this area were constant. Pressure over McBurney's point negative. Colicky pains recurring at irregular intervals, and severe in type, caused the boy to roll about and cry out. Both recti tense. There was some interference with the functions of the bowels as they did not act as readily as in health. No urgent symptoms being present, it was decided to await further developments. If no improvement occurred in twenty-four hours an exploratory laparotomy was suggested, the suspicion tending in the direction of a mild inflammation of the appendix.

January 28th; temperature 100° F., pulse 104; P.M., temperature 99° F. Restless all night, pains in paroxysm continue. Two good fecal movements followed injections made by nurse. Dr. John F. Erdmann was now requested to see the patient in consultation and suggested an early exploratory operation.

January 29th; temperature 99° F., pulse 110, very restless and in pain all night. Bowels moved well (distinct fecal masses) after injection. The necessary arrangements having been made the child was sent to Gouverneur Hospital and operated upon by Dr. Erdmann at 3:30 P.M.

The subsequent details, kindly furnished by Dr. Erdmann, are as follows:

"When I first saw the little patient, Unger, with Dr. Joseph Huber, he had all the manifestations of an appendicitis without any shock. He had had some so-called results from enemata. I suggested to them that the boy be submitted to operation as soon as possible. He was admitted to the hospital the next morning for operation, and when under ether, upon abdominal and lumbar palpitation no tumor was found in the appendicular region, but upon subcostal palpation, a tumor about the size and absolutely the shape of a kidney was displaced, and could be brought down into the right iliac region. This tumor would slip back into the loin exactly as a floating kidney would. The abdomen was opened, with a view of exploration, through the right rectus. Digital examination detected a tumor involving the colon and cecum with a slight portion of the ileum. This tumor proved to be an intussusception, which was readily reduced; the appendix was removed, and the abdomen closed without drain. The patient made a perfect recovery, and was discharged to his home in ten days."

CASE II.—Nellie, nine years old, was seen in consultation with Dr. Hymanson. The history was briefly as follows: Four days before, without any apparent cause, the child was taken with severe pains in the abdomen, more intense in the umbilical region. The pains occurred in paroxysms, and at rather frequent intervals. She vomited several times daily; in the beginning the contents of the stomach were ejected, later on mucus and bile; no fecal odor noticed. As a rule constipation existed. It was reported that since her illness the bowels had acted several times in consequence of the cathartics which had been administered by the mother. No history of blood in the stools.

Physical examination: No heart or lung trouble. Liver and

spleen normal. Abdomen retracted, both recti tense, pain and tenderness in the umbilical region; urination normal, rectal examination negative. No tumor evident on deep palpation in the lumbar or right iliac region.

The similarity of this case to the one referred to above suggested intussusception and operation was advised.

The child was thereupon sent to the Beth Israel Hospital, to the surgical service of Dr. A. E. Isaacs, for exploratory laparotomy.

For the further history, I am indebted to my colleague, Dr. A. E. Isaacs, to whom I desire to extend my thanks for the courtesy of being allowed to see the case on several occasions.

The same evening the child was chloroformed and as nothing abnormal was discovered in the abdomen or per rectum, and as the symptoms were not urgent, it was decided to await further developments. The following day blood was observed in the stools, the same paroxysmal pains recurred, pain and tenderness still persisted about the umbilical region. The same evening a large quantity of fluid blood was passed. Temperature 99° F., pulse 100-110, respiration 20-24.

February 28th, 9 A.M., small movement (brownish fluid, with mucus and blood) very offensive. Still complained of pain. Temperature, pulse and respiration the same.

March 1st, operation by Dr. Isaacs. Medial incision. Intussusception in ileocecal region readily reduced. Appendix removed. The subsequent progress, except for some local pain and a small abscess in the deeper part of wound, was uneventful.

In the cases referred to above, rigidity of the recti muscles with umbilical pain and tenderness were present as constant symptoms. Vomiting occurred occasionally. The bowels could be moved by high enemata. Paroxysmal, colicky pains occurred in both cases. The suffering during the attacks was extreme, affording a striking contrast to the peaceful state in the interval. The temperature was slightly elevated and the pulse but little accelerated.

A tumor was detected in the first case when the child was under narcosis, just prior to the operation, that is, on the fifth day. In the second instance a thorough examination under chloroform failed to reveal any swelling. At no time was any blood or mucus present in the stool of the boy. In the case of the girl, characteristic bloody stools were first noticed after the child had

been examined under chloroform about the sixth day of her illness. No collapse or evidence of shock in either patient.

A detailed consideration of the salient points in the two histories may prove of value in assisting us in arriving at a positive diagnosis in future cases. Clinicians have for years recognized the import of *rigidity of the abdominal muscles with pain*. This point has been thoroughly discussed in an able article, from which, because of its importance, the following is abstracted: J. A. Blake (*New York Medical Journal*, January 3, 1903) emphasizes the value of rigidity as an early diagnostic point and believes that pain and rigidity go hand in hand as the cardinal subjective and objective signs of commencing as well as advancing abdominal trouble. "Rigidity is the reflex spasmodic contraction of the muscles of the abdominal wall exerted, not only to protect the irritated peritoneum from influences acting from without the body, but also to restrain the movements of the viscera and thus produce rest. It is an active, constantly-acting spasm of the muscle not necessarily accompanied with swelling or tenderness. Its degree and extent are valuable as evidencing a corresponding degree and extent of abdominal trouble. When slight it may be confounded with the voluntary contraction of muscles to protect a tender viscus and hence, the manner of eliciting rigidity is important. Gentle pressure with the flat of the hand, thus gaining the confidence and diverting the attention of the patient, will give much more valuable information than strong, deep pressure."

A tumor, when present, is a sign of great importance. It must not be forgotten, that we may not be able to demonstrate its presence until anesthesia is resorted to. Now and then, during the characteristic colic or while palpating the abdomen in a suspected case, an erectile mass may appear at the site of the lesion. If a tumor be present, it is apt to become more prominent under the condition referred to.

The pain is of two varieties. First, a constant pain with tenderness in the umbilical region; second, the recurring colicky attacks with evidence of extreme and acute suffering.

Text-books and clinical experience teach us that one or more of the diagnostic symptoms may be absent or not appear until late.

Paroxysmal colicky attacks in connection with *rigidity of the abdominal recti* and *localized pains* form a characteristic symp-

tom complex. A consideration of these cardinal symptoms with the recent experience of the first case justified a positive diagnosis of intussusception in the second instance.

As a strange coincidence about this time, a girl of twelve years was admitted to the Beth Israel Hospital, presenting symptoms that were rather suspicious. A provisional diagnosis of intussusception had been made prior to her admission to the hospital. Her general condition was excellent. She had vomited some and had had severe abdominal pains, not paroxysmal in character, however. Pure blood had been passed per rectum. The abdomen was retracted and tender. The presence of a purpuric eruption upon the extremities revealed the true nature of the case and enabled us to exclude intussusception.

Appendicitis in children is frequently attended with pain in the umbilical region and rigidity of a rectus muscle. The pain, however, is of a different character, not necessarily paroxysmal. As a rule, there is but little difficulty in arriving at a proper diagnosis. The following instance, which occurred in the surgical service of my friend, Dr. H. M. Silver, at Gouverneur Hospital, is cited as an illustration.

N. L., *act.* ten years, Russian. Schoolboy. Admitted January 18, 1903. History.—He has had no previous attacks. Digestion always good. About twenty hours before admission was seized with abdominal pains which in a few hours became worse on right side. Since beginning of attacks has eaten nothing, has vomited four times. Bowels moved twice in response to cathartics given at beginning of attack. Micturition normal. On examination right rectus muscle contracted, marked tenderness just below and to the right of umbilicus, very slight pain, and no marked rigidity of the muscles in the right inguinal region. No tumor felt. Abdomen somewhat distended, tympanitic. Temperature 103°F., pulse 138, respiration 30.

Operation.—Incision through right rectus muscle just below and to right of umbilicus; when peritoneum was opened a large quantity of seropurulent fluid escaped. Mass of congested omentum found just below incision. When unfolded, it was found to contain the tip of the appendix which was gangrenous; the appendix was directed upward and inward toward umbilicus and was four inches in length. Greater part of appendix and cecum healthy. Small contraction in apex of appendix. Wound closed, convalescence normal.

THE PROPHYLACTIC USE OF DIPHTHERIA ANTITOXIN IN SCHOOL CHILDREN.

A PROPOSITION TO IMMUNIZE YOUNG SCHOOL CHILDREN ONCE OR TWICE DURING THE SCHOOL YEAR WITH DIPHTHERIA ANTITOXIN AND THEREBY LESSEN THE MORTALITY FROM PRIMARY DIPHTHERIA, SCARLATINA AND MEASLES COMPLICATED WITH DIPHTHERIA.*

BY AUGUSTUS CAILLÉ, M.D.,
New York.

The curative and immunizing properties of diphtheria antitoxin are established facts. According to recent careful and unbiased investigations, the mortality in primary diphtheria has been reduced two-thirds and the protective power of diphtheria antitoxin extends over a period of from three to six weeks or more. With an agent so powerful for good at our command, the question naturally arises: Do we or do we not make the best use of our new therapeutic acquisition?

It is not the intention of the writer to discuss the indications for the use of diphtheria antitoxin, but to suggest a new use for this agent, by advocating an immunizing injection for young school children once or twice during the school year, for instance, in November and February, with the hope of preventing infection from primary diphtheria or croup; and, furthermore, with the hope of lessening the mortality of the severe forms of scarlatina and measles, a large percentage of such cases being complicated by diphtheria from the beginning or in the course of the disease.

It is well known to the experienced medical practitioner that cases of scarlatina which show a complicating diphtheria from the onset are of a very grave type. In such cases we often observe an overwhelming sepsis with delirium and circulatory failure. In scarlatina with complicating diphtheria setting in after the first week, the septic symptoms are never so acute and urgent.

In measles we have diphtheria as an early or late complica-

* Read by title at the meeting of the American Pediatric Society, Washington, D. C., May 12, 13 and 14, 1903.

tion but the most important diphtheria complication of measles is diphtheritic croup. The mortality from scarlet fever plus diphtheria and measles plus diphtheria is quite high, and the writer is of the opinion, based on clinical experience, that this mortality can be markedly reduced by means of protective inoculations of diphtheria antitoxin. Such prophylactic management will have no effect upon pure and simple scarlatina or measles, but will certainly create more or less immunity as regards grave diphtheritic complications; or, in other words, turn a grave disease into a milder disease.

During the past two years the writer has practically followed out this line of thought and has immunized a number of school children twice during the school year. No figures are given for no one can tell what might or might not have happened. It may be stated, however, that not one of the children (altogether about twenty) contracted primary or secondary diphtheria and in no case was there the least unpleasant or unfavorable reaction after the protecting injection. The parents readily accepted the "protecting vaccination for diphtheria," and the writer has every confidence in the feasibility of this plan for communities in which diphtheria is endemic or epidemic.

Insurance of Children.—Budin (*Bull de l'Acad. de Med.*) went personally to certain provinces in the north of France to investigate the causes of the unusually high infant mortality. He learned that it was a current custom to insure the children in certain Belgian life insurance companies, which pay a premium on the death of a child. Under one year the parents receive \$4, the premium increasing to \$21 for a child of 6. Women who have baby farms frequently insure the infants, and it is possible to take out a policy on a child in all of the eight companies engaged in this business. For one penny a week, payable in advance, one company agrees to pay an insurance of \$2 to \$12.50 and supply a one-horse vehicle for the funeral. Certain companies pay a premium on the death of a child if both father and mother are insured. Others insure the unborn child and pay a premium on its death *in utero*. A Ghent physician collected statistics showing that 140 out of 147 infants insured in that city died before the end of their first year. The Académie adopted a resolution calling the attention of the government to this traffic in infant lives.—*Journal of the American Medical Association.*

CONGENITAL GASTRIC SPASM.*

BY J. PARK WEST, M.D.,
Bellaire, O.

Doubt has been expressed by some as to the existence of a true congenital hypertrophic stenosis of the pylorus. An examination of the literature and of some stomachs shown as specimens of this condition shows that two classes of cases have been described under this title. A few, a very few, cases are reported where there has been found postmortem hyperplasia of the epithelium, an increase of connective tissue in the submucosa, and of fibrous tissue in the muscular coat, in addition to hypertrophy of both the longitudinal and circular muscular layers, the presence of this abnormal tissue causing, sooner or later, a true stenosis. More cases are to be found, similar to the one here reported, where there is only found an hypertrophy of the circular muscular layer, the stenosis which undoubtedly exists being due almost entirely to spasm of the hypertrophied muscle. To the first class the title should be restricted, and to the second is better given the name suggested by Dr. John Thomson, viz.: congenital gastric spasm.

The practical importance of this distinction is lessened somewhat by the difficulty in differentiating the two conditions during life, as the symptoms are similar, and both may have a palpable tumor, gastric peristalsis, and dilatation. A few cases of congenital gastric spasm have been relieved by careful diet and treatment and others have had periods of relaxation of the spasm, but it is not to be expected that cases of true hypertrophic stenosis will be permanently benefited except by surgical procedures. Since the prospect that the cases of gastric spasm will be permanently relieved by treatment or that the relaxation will remain is very small, it would seem best that all cases of both classes should be submitted to an early surgical operation, and especially so if a palpable tumor is present.

HISTORY OF CASE.—The stomach here presented was taken from the body of Infant Dodd, who died when thirty-two days old. With the exception of the maternal grandmother, who died with typhoid fever, the grandparents are living and well. The

* Read at the meeting of the American Pediatric Society, Washington, D. C., May 12, 13 and 14, 1903.

father, thirty-eight years old, the principal of a school, has had symptoms of pyloric spasm at times for the past four years. The mother, twenty-four years old, is not very strong and is rather nervous. During the last half of this, her second pregnancy, she suffered a great deal with burning in, and eructations of a sour fluid from, her stomach. The only other child is a son three and one-half years old. He had colic severely and was very constipated for his first three months. Ever since then his bowels and appetite have been very irregular.

The baby, a male, was born July 12th after a normal labor and his estimated weight was ten pounds. On the next day his bowels and kidneys acted well. During the third twenty-four hours he had from fifteen to twenty large thin stools. This diarrhea stopped suddenly without apparent cause.

(1) *Vomiting*.—The child nursed vigorously within a half hour after his birth. The flow of milk was well established on the third day. There was retching on the first day, more on the second, and on the third day vomiting began and continued more or less until the death of the baby. The milk was usually expelled within five to thirty minutes, but a few times was retained for two or three hours and three or four times for four or five hours. The vomiting was always projectile and usually came on without warning, seldom being preceded by retching. Occasionally there was severe retching without vomiting. During the first part of the second week, when he was allowed to nurse all he wanted, he would often vomit before he was through nursing and immediately nurse again. The length of time he nursed seemed to have no relation to the length of time the milk was retained. On the thirteenth day the attending physicians made a diagnosis of ileocecal intussusception and indistinctly felt a tumor about two inches long. For the next three days (July 14th, 15th, 16th) he was given nothing by the stomach but an occasional spoonful of water and while there was no vomiting there was a great deal of retching. For these three days rectal feeding and injections were resorted to but without improvement in the symptoms. For the thirty-six hours following the three days' fast he was allowed to nurse for two minutes every two to four hours; and, while he would vomit within two minutes to two hours, it was thought he retained more of the milk than formerly. The appearance of the vomitus varied with the length of time it was retained in the stomach, that retained the longest being the most

digested. What I saw in a bottle brought to me was one-third soft milk clot and two-thirds light, straw-colored liquid. At no time was it stained with bile but contained some mucus toward the end and during the last week was a very dark brown color and of an offensive odor.

(2) *Stools*.—After the diarrhea on the third day there was obstinate constipation. A rectal injection was given at least once each day that usually caused a slight movement, and occasionally there was a very small passage without the injection. Four passages were shown to me; in the four there was about two teaspoonsful, nine-tenths of which was green mucus, the other one-tenth being small yellow flakes irregularly distributed through it. Thirty-six hours after his fast he had a small stool very much like a milk stool, only not so bright a yellow, and two similar ones the next day. Otherwise they were as first described until the last week when the few were the color and consistency of tar and very offensive. At no time was there a bloody or blood-stained mucous stool.

(3) *Pain*.—The suffering of the baby was intense much of the time. The pain would come on after nursing, with vomiting and attempts at vomiting, and even the eructation of gas was painful. A teaspoonful of hot or cold water would excite it. From the first there was pain following nursing, and in addition severe paroxysms, often lasting a half hour, that were more severe after midnight. After a few nursings on the seventeenth and eighteenth days there was little or no pain.

(4) *Physical Examination*.—I saw the child with Drs. Wood and Gregg, the attending physicians, on the twenty-second day. It was considerably, but not greatly, emaciated. For the previous twenty-four hours it had been having small doses of opium and belladonna and was quiet. There was but slight distention of the abdomen, limited to the upper part and most noticeable in the left half of the epigastrium. Very slight gastric peristalsis could be seen at times but this was never prominent. Pressure on the stomach would cause a light wave of contraction and at long intervals this was felt without pressure exciting it. Standing at the side of the mother while the child nursed one could hear loud gurgling that continued, gradually growing fainter, and ceased when nursing ended. This could also be heard when there was vomiting or retching and continued throughout the illness, being more marked the last week. The abdominal walls were very soft

and a swelling about one by one-half inch was easily felt one inch to the right of the median line and three-fourths inch below the border of the ribs. Nothing else abnormal was found.

General Symptoms.—The urinary secretion was high-colored and somewhat diminished but not scanty, owing, no doubt, to rectal injections. There was no fever until the last week. The child emaciated rapidly the last few days and died on the thirty-second day after having convulsions for seventeen hours. Its estimated weight at death was five pounds.

Autopsy.—This was limited to the abdomen. The stomach was full and contained some fluid and mucus. At the pylorus was found a very hard swelling one inch long and three-fourths inches in circumference. The cardiac end of the stomach (about one-third) was thin, distended, and prominent. Toward the pylorus (two-thirds of the stomach) the walls were thick and contracted. The examination of a section of the pylorus by the microscope shows only an hypertrophy of the circular muscular layer.

The Treatment of Trachoma by X-Ray Tube Exposure and by the High Frequency Current.—Sydney Stephenson, and David Walsh (*Medical Press and Circular*, February 18th) consider that, though surgical measures have so far afforded the best results, inasmuch as they materially shorten the course of the disease and in that way prevent the likelihood of such troublesome and serious complications as pannus, ulcers of the cornea, and trichiasis, this condition seems likely to be entirely changed by the introduction of two powerful remedial agencies, to wit, the x-ray focus tube and the "high frequency" electric current.

Of 4 cases of trachoma treated with the focus tube the eyes appeared to be cured in 2, while such considerable improvement took place in the other cases as to promise an equally favorable result with the continuance of the treatment. On several occasions slight, superficial dermatitis of the lids was noted, and in 1 case it amounted to a blister. The face was also similarly affected once or twice. A moderate dermatitis also occurred on the fingers and back of hand of the nurse who held the lids everted during one of the short distance exposures. A shield and mask of lead prevented any further mischief so far as hands and face were concerned.

The rapidity of the curative action is noteworthy. Every case showed a definite improvement from the first exposure. The immediate effect of the focus tube was to render the granular bodies redder and more prominent. That appearance was followed by a stage during which rapid absorption of the granulations presumably took place.—*New York Medical Journal*.

ARCHIVES OF PEDIATRICS.

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THE PROGRESS OF INTUBATION.

It was in 1885 that after five years of unrelenting toil and study, carried on in the face of many obstacles and discouragements, O'Dwyer made the announcement of his successful experiments in intubation and exhibited the instruments which he had invented to serve his purpose.

The rapid progress of the popularity of the operation in this country is a matter of common knowledge. At the present time it is practically the only operation employed for the relief of the stenosis of laryngeal diphtheria, while its sphere of application has been extended to include various other forms of laryngeal

obstruction. The general use of antitoxin, while reducing the total number of intubations, has completed the triumph of the operation in the field of laryngeal diphtheria. We well remember O'Dwyer's early tribute to the efficacy of antitoxin in reducing the frequency of the call for any operative measure in that dreaded affection, but the change has on the other hand only increased the prestige of intubation, by driving tracheotomy from the field. The few hours time required for the effective action of the serum are secured by the use of the tube, the severer operation is very rarely indeed called for.

Certain of the attendant circumstances of this rapid adoption of the operation in this country were not, however, satisfactory to O'Dwyer and are not now to those who, from close relation with the inventor, are most unselfishly interested in the perpetuation of his work. The general demand for the instruments called forth a supply, many of them not made with proper skill, many of them rude travesties of the originals. The dangers of the use of imperfect instruments have been clearly pointed out in the protest of Northrup (*ARCHIVES OF PEDIATRICS*, July, 1903) and Nicoll (*ARCHIVES OF PEDIATRICS*, June, 1902).

It is to be remembered that the crucial point in the problem of intubation was to make a tube that would permit respiration and would be retained in the larynx for the necessary length of time without producing serious destruction of its delicate tissues. That problem O'Dwyer solved only after years of thoughtful experimentation. Every detail of the tubes underwent numerous modifications to meet the requirements of the patient and to avoid the ulcerations revealed by a long succession of autopsies. Every practitioner of intubation should read O'Dwyer's Presidential Address to the American Pediatric Society (*ARCHIVES OF PEDIATRICS*, 1896) to appreciate the difficulties of the problem of intubation and the significance of the instruments with which he deals.

The progress of intubation in Europe, while naturally much slower than in our own country, has been remarkably rapid and

successful. That the importance of the operation has been appreciated in Germany is evidenced by the fact that between 1890 and 1900 it was six times considered in the sessions of the "Gesellschaft für Kinderheilkunde," and finally, in 1901, an entire session was devoted to the operation with exhaustive papers by such masters in its practice as Bokáy, of Budapesth, Siegert, of Strassburg, Von Ronke, of Berlin, and others. Siegert's paper deals with masses of statistics from various hospitals of middle Europe. The figures show a steady increase in the use of intubation instead of tracheotomy. While Siegert finds that the introduction of intubation has not led to improvement in the mortality records, he states that that should not determine the question whether the severe, bloody operation is justifiable in cases where the less terrifying, easier, more rapid, and bloodless operation gives the same result.

O'Dwyer was wont to say that mortality records could never represent the value of the two operations, and to call attention to the experience of the city of Brooklyn. With four or five hundred deaths from croup each year the leading tracheotomist operated sixty-six times in seventeen years. In the same city one intubator in four years operated upon 142 cases. The tracheotomist saved 22 cases in seventeen years, the intubator 42 in four years!

In France the progress of intubation in recent years has been rapid. In the "*Traitement de la diphthérie*" of De Guy and Weill, published in 1902, we find ample acknowledgment of the work of O'Dwyer, although the instruments described are largely French modifications of the originals. In Grancher and Comby's "*Traité Des Maladies de l'Enfance*" (Vol. I., second edition, 1904) Sevestre and Martin tell us that until the introduction of antitoxin the French surgeons had been faithful to the operation of Bretonneau and Trousseau, but since the change in conditions, brought about by the use of antitoxin, intubation has been taken up again under the influence of Roux and has already almost completely supplanted tracheotomy in the hospitals for children.

Both French and German writers show a tendency to resort to tracheotomy in many cases as a primary procedure, and also as a secondary operation in cases not relieved by intubation within a few days, which is entirely contrary to the practice in this country. We believe that improved technique and improved instruments, especially the use of the hard rubber tubes whose production was one of the last accomplishments of O'Dwyer's life, would enable them to avoid many of these tracheotomies.

In England intubation has gained ground very slowly indeed.

Shurly (*Journal of the American Medical Association*, July 11, 1903) declares that "In view of the brilliant results with intubation and antitoxin in America and on the continent, the incomprehensible antagonism of the followers of Lenox-Brown in England calls forth a most hearty condemnation. The reserve with which intubation is received in Great Britain is almost beyond pardon. A review of the literature of this operation in the *British Medical Journal* for the last decade reveals just seven references to it, six of which are short abstracts from articles published on the continent only, the other one embracing reports of the papers of O'Dwyer and Northrup which were read before the children's section of the British Medical Society."

The poverty of English literature on the subject is borne out by the article of Fairbank on "Intubation in cases of Diphtheritic Laryngitis" (*Lancet*, June 20, 1903). The writer says that intubation has been adopted as the primary procedure in the Great Ormond Street Hospital for Sick Children, and tracheotomy is resorted to only in case of failure with intubation. He asserts that intubation has not received in England the attention it deserves and that if tried in a few more hospitals, it would soon be adopted in all.

Altogether when one surveys the whole field, he is most impressed with the wide extent of the use of the operation, and with the completeness of the triumph of O'Dwyer's work. The secret of this triumph lies in the thoroughness with which that work was done. The years of thought and effort have borne their

fitting fruit. He who would thoroughly understand the operation of intubation must go back to O'Dwyer's work, and he who would practice the operation must use O'Dwyer's instruments or close imitations of them. The closer he keeps to the master, the better his work will be.

THE NEW YORK CITY CHILDREN'S HOSPITALS AND SCHOOLS.

It is a remarkable fact that in this huge city with more than 3,000,000 inhabitants there is but one hospital devoted to the care of children and equipped to receive and properly treat sick children of whatever age or condition. There are a number of hospitals adapted to the care of infants, others devoted to the care of children suffering from certain classes of diseases; there are wards for children in some of the large general hospitals, and there are institutions like the New York Foundling Hospital which take care of all of their own children who fall sick, but the fact remains that there is but one children's hospital with sufficient scope to meet all the emergencies of that period of life, and that one is the city institution on Randall's Island whose title has recently been changed to the New York City Children's Hospitals and Schools. This institution embraces within itself several establishments, the Infant's Hospital for the care of children under two years with or without their mothers; the Children's Hospital for those of more advanced age; the School for Feeble-Minded for the care of children who, although mentally deficient, are yet teachable; and finally, the Custodial Asylum for the care of hopeless cases of epilepsy and idiocy. The size of these institutions may be fairly gathered from the census returns of July, according to which the Infant's Hospital contained eighty-seven infants; the Children's Hospital had 548 inmates; the School for Feeble-Minded 292, and the Custodial Asylum 228, all told a total of 1,155 children. The opportunities offered in the institution for the observation of the diseases and affections peculiar to childhood are

correspondingly wide. The institution has never enjoyed the reputation or done the service that its size and scope would warrant, partly because it is relatively inaccessible but much more largely because it has heretofore suffered from the faults of management common to all our city institutions and has not been in position to do the quality of work that should be done and which would bring interest and reputation to it.

Randall's Island lies at the mouth of the Harlem River opposite One Hundred and Twentieth Street. Its area is over 150 acres and nearly all of this is devoted to the above named institution. The land rises rapidly from the shore, the air is fresh and invigorating, and altogether the site offers unusual advantages for the purpose to which it has been applied. That there is a wide field for a children's hospital in the city need hardly be said. The great obstacle to the proper development of the hospital has already been indicated. The purpose of this article is to call attention to the changes brought about by the present city administration under the leadership of a thoroughly qualified commissioner of charities, who is entirely free from the influences of partisan politics and devoted to the work in which he is engaged.

We cannot undertake to mention all the improvements that have been made in the equipment and administration of the hospital. There is space only for those most closely affecting the medical service. In the first place the means of communication have been revolutionized by replacing the picturesque row-boat with a small steam launch. That in itself means much, especially to the women and children who were formerly exposed to storms in an open boat. A number of new buildings are in course of erection, particularly isolating pavilions for the care of contagious diseases, the old pavilions being very poor and inadequate. A clinical laboratory has been fitted up and put in service. A number of milch cows have for years been kept on the island but, owing to the conditions surrounding them, it has not been advisable to use their milk for the feeding of children. This has been changed by having the cattle tested with tuberculin, by

replacing a poor grade of cows by Ayrshires, and by bringing the care of the cows and their milk up to the proper standard. The nursing in the hospital has been greatly improved by increasing the number of trained nurses and better arranging their responsibilities. Within the recent months the question of the distribution of the children in the several parts of the institution has been taken up. Upon investigation it was found that there were no proper rules governing the admission of patients to the hospitals or the schools or their transfer from one branch of the service to another, and that abuses of great importance to individuals had resulted, especially in the assignment of blind or deaf children to the School for Feeble-Minded. These errors have been corrected and regulations framed to prevent their recurrence. The amount and quality of the instruction to children in the institution has been considerably improved.

Altogether the advances made during the past eighteen months have constituted a revolution in the work of the whole institution. There is still much to be done. The possibilities before this institution are enormous. It is cause for congratulation that the present commissioner recognizes them and is bending his very unusual energy and ability to accomplish them.

Bacteriologic Diagnosis in Medicine.—In connection with diphtheria, Woodhead (*British Medical Journal*, September 27, 1902) points out the difficulty of obtaining positive cultures in cases in which the lesion is laryngeal or tracheal, and also in very young children, owing to the difficulty in procuring a satisfactory "swab." In case of a first negative report, repeated attempts should be made. Thus in 6.7 per cent. of Woodhead's cases (12, 172) the first examination was negative, but subsequent examinations demonstrated the presence of the microorganisms. Mixed infections with staphylococci give a greater mortality than those with the streptococcus, while in mixed infection of any kind the death rate is higher than in infections with the diphtheria bacillus alone. In the majority of cases the bacilli persist for from two to nine weeks, a fact which emphasizes the importance of not discharging patients until bacteriologic examination reveals the continued absence of the bacilli.—*American Medicine*.

Society Reports.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.—LONDON.

Meeting of May 15, 1903.

DR. FREDERICK TAYLOR, CHAIRMAN.

DR. PORTER PARKINSON showed a case of

COLLOID CANCER OF THE PERITONEUM,

removed from a child, aged twelve years. During life the abdomen was distended with free fluid and she was thought to be suffering from tuberculous peritonitis. On removal of the fluid, large cells filled with colloid deposit were found in the detritus. An irregular large swelling was then palpable in the hepatic area and some scattered nodules could be found elsewhere. An abdominal section was subsequently made and the peritoneum was found to be sown with small masses of growth of a sodden, semi-transparent appearance, which, microscopically, were found to be colloid cancer. Subsequently the abdomen became filled completely with irregular masses of growth which surrounded all the contained organs.

DR. THEODORE FISHER (Bristol) said the majority of cases of cancer (peritoneal) were secondary to disease somewhere else in the alimentary canal and, in his experience, it was often very difficult to find the primary source.

DR. A. E. SANSOM thought by reason of its early age the case was probably a record, and it raised the question as to the value of a microscopical examination of the ascitic fluid for diagnostic purposes.

DR. PARKINSON, in reply, said the primary seat of the growth was thought to have been the rectum. He thought the detection of cells by the microscope such as he had described might possibly prove of assistance in diagnosis.

DR. A. A. H. PARTRIDGE by invitation showed a boy,

AGED TEN AND ONE-HALF YEARS, THE SUBJECT OF INTERSTITIAL
KERATITIS,

who simultaneously developed an affection of the hands. The question as to the precise condition to which the joint changes were due was an interesting one. The joints looked to most people like those of osteoarthritis, but he supposed they must be due to the general condition. An interesting point about the case was that the left hand became affected after the left eye, and the right later on. This happened in November, 1901. The right eye failed in January, 1903.

DR. EDMUND CAUTLEY said it did not seem to him to be a syphilitic affection of the joints; he was much more inclined to consider it a case of osteoarthritis arising in a child, the subject of hereditary syphilis. The condition of the joints was so comparable to what was found in that condition that he saw no reason to suppose that it was syphilitic.

DR. G. A. SUTHERLAND was opposed to Dr. Cautley's views. He admitted that the appearance was very like that of osteoarthritis, nevertheless seeing that the child was syphilitic and knowing that that disorder comprised many manifestations which would simulate almost any known form of disease he thought that the joint changes were probably syphilitic in origin. The important test in that connection was the result from treatment, though the want of success from treatment was not always a criterion.

DR. GEORGE CARPENTER agreed as to the striking resemblance between the child's condition and osteoarthritis. He thought there was periosteal thickening of the heads of the metacarpal bones and that the condition of the knuckles could not be distinguished from syphilitic epiphysitis. He thought that one of the metacarpo-phalangeal joints displayed gummatous synovitis and it had apparently escaped notice that the carpus on both sides was also involved. He thought the type the disease had assumed was very unusual but he was in favor of its syphilitic nature. He hoped some x-ray photographs would be taken, as they might throw some light on the structures involved, and that the child would be shown again to the Society after a topical and antisyphilitic course.

DR. F. PARKES WEBER said he had examined the case very carefully with Dr. Carpenter and the evidence was very strong

in favor of its being a symptom of congenital syphilis. Unlike osteoarthritis there was a complete absence of tenderness and the movement in the joints was almost perfect. The changes were almost entirely confined to the bones and the periosteum. Certainly there was just the slightest effusion into one or two of the joints. He regarded the case as one of phalangitis of syphilitic origin. A continental observer had pointed out that one of the diagnostic signs, where the metacarpal bones as well as the phalanges were affected, was that the swelling occurred chiefly at the distal ends of the metacarpal bones, *i.e.*, in the neighborhood of the epiphyses. This diagnostic feature was strongly marked in the present case.

DR. FREDERICK TAYLOR said he was interested in the discussion and related the case of a child with swelling of the bones, where a difficulty arose as to the nature of the affection, as between osteoarthritis and syphilis. She had a hard lump on one parietal bone and her mother had suffered from syphilitic necrosis of one of the cranial bones. She had not the appearance of a syphilitic child.

DR. PARTRIDGE in reply did not consider the ends of the bones were enlarged but he thought the tissues round the joints were thickened. He did not see how any plain distinction could be drawn between osteoarthritis and syphilis except that the child was syphilitic.

DR. EDMUND CAUTLEY showed the

STOMACH AND ESOPHAGUS OF AN INFANT AGED EIGHTEEN MONTHS
WHO HAD DIED FROM DIPHTHERIA.

The child was admitted for constipation and anuria and ten days later developed bacilluria, the variety being the bacillus coli. Subsequently it became feverish, profoundly asthenic and died in twelve days from the onset of the fever. The esophagus contained membrane in the upper third. One-third of the mucous membrane of the stomach toward the pylorus was covered with yellowish-grey membrane.

DR. THEODORE FISHER said that if bacilli were examined for in the urine they would be found more often, and he drew attention to the large number of cases of pyelitis that were overlooked in the postmortem room. If the pus from such were ex-

ained microscopically the microorganisms of the associated disease would be found in it.

DR. WATSON said he had obtained a pure culture of the Klebs-Löffler bacillus from the mucous membrane of the stomach and also in sections of the stomach wall.

DR. J. PORTER PARKINSON showed

A CASE OF ENLARGED BRONCHIAL GLANDS

in a child aged four and one-half years which was associated with a paroxysmal cough like whooping-cough. The associated signs were those of bronchitis with weaker breath-sounds on the right side and in places somewhat bronchial in quality. There was much sputum which was free from tubercle bacilli. The fingers and toes were clubbed. He thought there were enlarged mediastinal glands pressing on the right bronchus with secondary dilatation of the tubes and that the "whoop" was occasioned by irritation of the vagus nerve.

DR. FREDERICK TAYLOR said his clinical experience had considerably modified the ideas which had been impressed upon him years ago as to the supposed frequency of enlarged bronchial glands, which he now looked upon as quite a rarity.

DR. G. A. SUTHERLAND said the evidence of enlarged glands was not very striking to those who saw the child for the first time. The physical signs of the right lung were quite sufficient to account for the condition. He would be inclined, perhaps in a spirit of contradiction, to take the opposite view and to look upon the changes in the lung as primary. Dr. Parkinson would find it equally difficult to disprove that contention.

DR. PARKINSON, in reply, was doubtful whether bronchiectasis alone was sufficient to explain the very continuous whoop. It was so distinct that the child was not allowed by its mother's friends to associate with their children, and it was sent out of hospital on several occasions as a case of whooping-cough.

DR. FREDERICK TAYLOR showed a case of

ATHETOSIS IN A CHILD WITH MITRAL DISEASE.

The girl was suddenly attacked with right-sided hemiplegia during sleep and some twitchings of the right arm and leg were

noticed at the onset. Involuntary movements commenced in the right hand and foot two days after the hemiplegia began.

DR. A. E. SANSOM said there was no question as to the embolic plugging of the left middle cerebral artery. Plugging in a purely rheumatic case of heart-disease was not quite so common as people thought.

DR. EDMUND CAUTLEY asked if it were a common experience for athetosis to develop so quickly after hemiplegia.

DR. G. A. SUTHERLAND said Dr. Taylor's first impression was that he, Dr. Taylor, was not quite sure whether it was athetosis or chorea, and his own impression was that it was a case of chorea from the nature of the movements. It seemed to him that the movements were very rapid for athetosis and there was also the fact of the rapidity of their onset and there was the association of endocarditis which was a strong point in favor of chorea, and he did not think the absence of facial movements absolutely excluded chorea. He also asked whether there had been any rigidity or spasticity.

DR. GEORGE CARPENTER related a case where athetosis involved both sides in sequence to meningitis and the movements on the right side were so violent that the arm had to be strapped to the side. First one side of the body was attacked by paralysis and then the other, but the choreiform movements were not so distinctive a feature on the left side as on the right. The illness was very chronic and progressive, but the child, who became subject to epileptic attacks, lived for about ten years.

DR. FREDERICK TAYLOR, in reply, said such an early onset was very uncommon. The difference in rapidity of the movements observed in various cases went for very little and, to illustrate that, he called attention to a man sometimes to be encountered in the London streets, who had a "mad" arm, the movements of which were sometimes so violent that it had to be strapped to the side. Chorea itself was sometimes "fast" and sometimes "slow." In regard to spasticity he would not expect to find that, as he thought it was not present in athetosis; it was replaced by abnormal mobility. His opinion was that it was embolic and permanent, but that if it were choreic as Dr. Sutherland thought, its recovery might be expected in two or three months.

DR. FREDERICK TAYLOR showed a case of

ACUTE ANTERIOR POLIOMYELITIS INVOLVING THE ABDOMINAL
MUSCLES

as well as the legs and lumbar muscles.

MR. A. H. TUBBY was interested in the question of the exact influence of the abdominal muscles in relation to the maintenance of equilibrium. He had been looking for a case of paralysis of the abdominal muscles alone, but so far he had not found it.

DR. THEODORE FISHER drew attention to a case of his own, one of paralysis of the abdominal muscles, where the belly-wall "ballooned" on one side in sequence to respiratory movements and in which case the anterior cornua appeared to the naked eye to be involved.

DR. G. A. SUTHERLAND asked Mr. Tubby if he had any theory as to why the trunk muscles escaped and why they were so rarely involved.

MR. TUBBY, in reply, said the more he saw of cases of infantile paralysis the more he found these muscles were involved, and he thought the lesions were as much primary there as in the limbs.

DR. TAYLOR said he was not surprised at Mr. Tubby's answer, he was going to suggest the same thing. Probably the abdominal muscles escaped examination along with the limbs. In regard to Dr. Fisher's case, he assumed that in order to obtain bulging there must be a considerable portion of the muscles intact and a limited portion affected.

DR. E. C. WILLIAMS (Bristol), read a paper upon a case of

INFANTILISM IN A CHILD AGED TEN YEARS,

who had not grown since she was four years old. Her weight was twenty-six pounds, and her height three feet. She was awkward to manage and rather dirty in her habits. She could read her letters and count and answer simple questions fairly intelligently. There was no heart disease; she was free from congenital syphilis and rickets and she had lost weight under thyroid treatment.

DR. G. A. SUTHERLAND asked whether there were any anatomical defects and drew attention to a case he had recently brought to the notice of the Society.

DR. GEORGE CARPENTER drew attention to the association of

infantilism in congenital syphilis with atrophied testicles. He suggested that Dr. Williams should make a rectal and bi-manual examination of the pelvic viscera and report upon the condition of the uterus and the fallopian tubes and ovaries, as it would make the case more complete.

DR. JOHN McCaw (Belfast), read a paper on a case of

· SPLENIC LEUKEMIA IN A CHILD AGED EIGHTEEN MONTHS.

There was no history of syphilis and she was not rickety. The accessible lymphatic glands were enlarged. The spleen reached to the umbilicus and the liver also. The urine was loaded with oxalates and contained a trace of albumen. There was intense leukocytosis—the lymphocytes reached 99.2 per cent. of the leukocyte count. The red corpuscles were diminished by more than half and a few nucleated corpuscles were seen. The hemoglobin was 39 per cent. She subsequently developed purpura and died soon afterwards. The spleen diminished in size considerably before death and was not nearly so hard to the touch. The swelling of the lymphatic glands disappeared to a large extent and they were not so hard.

A Leech in the Trachea. Tracheotomy. Recovery.—

Dr. G. Mollica (*Gazzetta degli ospedali e delle cliniche*, February 22), reports the case of a boy, aged thirteen years, who was brought to the hospital in a state of asphyxia. This condition had come on suddenly, without warning, the boy having been previously perfectly well. There were repeated attacks of dyspnea, until tracheotomy was finally resorted to in order to save the patient's life. When the tube was inserted, the breathing became quiet, but after a time a new attack of asphyxia set in, with the tube in place. The tube was then withdrawn and a large leech was seen crawling in the cannula. It was removed from the cannula, and the latter was replaced, with the effect of securing perfect breathing. The patient was well in a few days. Tracheotomy should be performed in all cases in which a man is menaced with suffocation from some unknown cause, for, if the diagnosis of a foreign body is erroneous, no harm is done, and if it is correct the life of the patient may be saved.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Meeting of Tuesday Evening, June 9, 1903.

DR. D. J. MILTON MILLER, CHAIRMAN.

DR. FRANCIS W. SINKLER, by invitation, exhibited a boy of fourteen years

WITH MITRAL STENOSIS AND REGURGITATION

who had presented himself at the Medical Dispensary of the Episcopal Hospital with the statement that he had phthisis, and with the request that a certificate for admission to a sanitarium for tuberculous subjects be given to him. He was found to be extremely cyanotic and dyspneic. He had a bulging precordia, systolic pulsation of the cervical veins, and a very widespread cardiac impulse. The cardiac dullness extended from about the right nipple line to near the left posterior axillary line, laterally; and from the second rib to the eighth rib. A strong double thrill was palpable over this area. The second pulmonary sound was not accentuated. There was a rough systolic murmur, and also a slight diastolic one; and at the tricuspid area was another murmur, which was apparently individual. There was an ill-defined Broadbent's sign, and the cardiac dullness was apparently immobile on change of position. The lungs were congested, and there was an effusion in the right pleural cavity. The patient had no ascites or edema of the legs.

It was at first suspected that there were both mitral valvular disease and chronic adhesive pericarditis, because of the apparent Broadbent's sign, the immobility of the cardiac dullness, and the extremely marked enlargement downward and to the left. With rest, the signs became much more distinctive, and seemed to be those of mitral stenosis and regurgitation. There were probably no pericardial adhesions.

The only history that had any bearing upon the cardiac condition was that of two attacks of pneumonia occurring in 1901. Since these attacks the boy has always been cyanotic and dyspneic on slight exertion; and for a year he has been growing persistently worse. The pulmonary condition that led the boy to report as a case of tuberculosis was due entirely to congestion.

DR. S. McC. HAMILL then read

THE REPORT OF THE PHILADELPHIA PEDIATRIC SOCIETY
MILK COMMISSION,

containing recommendations to the Department of Public Health for the improvement of the milk supply of Philadelphia.

It is almost incomprehensible that the conditions under which the production, transportation, and distribution of milk—the food of infants and invalids, and of a large percentage of people in all conditions of life—should have received so little consideration at the hands of our lawmakers. The influence of a defective milk supply upon the infantile mortality is a matter of history; and yet, at the present day, the laws that are supposed to protect the public from the dangers of a defective milk supply are totally inadequate, and these are inefficiently enforced.

In the hope of improving dairy conditions, and to protect consumers against the dangers of an impure milk, this Society organized a Milk Commission in 1899. The requirements of this Commission, put briefly, are these:—All dairies under the certification of the Commission, at least once each month, must submit to an inspection by a veterinarian appointed by the Commission. The duties of the veterinarian are to determine the state of health of the herd, the degree of cleanliness of the cows and the stables, the character of the food and water supply, the general precautions of cleanliness in the milking and the care of the milk. Once each year he must test the entire herd for tuberculosis, and see that all new cows admitted to the herd have satisfactorily passed the same test.

The milk and cream must be examined at least once each month by a chemist and a bacteriologist appointed by the Commission. The chemist determines the presence or absence of coloring matters, whether or not the milk has been pasteurized or sterilized, and the percentage of its different ingredients. The bacteriologist determines the number and nature of the bacteria present. All milks must contain less than 10,000 germs to each cubic centimeter, and be free from pathogenic forms. This number is lower than is required by any other commission in the country; and, when one considers that the ordinary market-milks sometimes contain as many as 10,000,000 to each cubic centimeter, the character of this standard can be better appreciated.

The result of the Commission's work has been most gratifying. While a number of the dairies that have endeavored to comply with these requirements have failed, others have met them in a most satisfactory manner. This applies to all the dairies at present receiving the certification of the Commission, which are:—The Walker-Gordon Dairies, of Plainsboro, N. J., with offices at 1721½ Chestnut Street, (selling milk and cream); the Willowbrook Farms Dairies, of Jenkintown, Pa., with offices at Abbott's Alderney Dairies, Philadelphia, (selling milk and cream); Haddon Farms Dairies, at Haddonfield, N. J., the product of which (milk only) is also sold by Abbott's Alderney Dairies, of Philadelphia; the Purity Milk Company, of Trenton, N. J., whose milk and cream are sold by F. A. Wills, Berks and Camac Streets, and by Supplee's Alderney Dairies, 1744 North Eleventh Street, Philadelphia. The products of two additional dairies are now pending examination for certification by the Commission. Each jar bearing the milk or cream from these dairies bears on its cap the name of the dairy in which it is produced, and under the cap is placed the certificate of the Philadelphia Pediatric Society Milk Commission. These certificates are granted for a period of one month, and are not renewed unless the dairy satisfactorily complies with all the requirements of the Commission.

The woeful condition of the general milk supply of this city, together with a knowledge of the valuable work that has been accomplished by our Commission, has led the present Director of Public Health, Dr. Edward Martin, to request this Commission to formulate a plan for the improvement of the general milk supply, and to obtain for such scheme the endorsement of this Society.

The existing laws and regulations, in abstract, are as follows:—All milk shall contain, as a minimum, 3.00 per cent. of fat and 12.50 per cent. of total solids. It shall be free from preservatives and coloring matter. Any milk may be examined at any time, in the laboratory of the Department of Public Health, for the presence of streptococci and pus-cells. Their presence is accepted as an indication of inflammation of the udder, and necessitates a veterinary inspection of the herd.

These regulations are carried out by an inspector of milk and a corps of assistants. Inspections are made at no fixed time, and examinations are required only when suspicious circumstances exist. This system of inspection doubtless has some beneficial effect in regulating dishonest methods; but it is in no sense ade-

quate to protect the public against the dangers of unclean, carelessly-transported, poorly-preserved milks, which are handled by honest, but ignorant, producers and dealers.

After a careful consideration of all the difficulties attached to the proper regulation of the manner of production, transportation, and distribution, your Commission is prepared to submit the following recommendations for your endorsement. We would recommend:—

(1) That all milk-sellers be required to obtain a license, and that such license be granted free of charge.

(2) That no license be issued unless the dealer is willing to state the source of his supply, and to give satisfactory evidence that the producer from whom he receives his milk maintains his herd and premises up to the standard prescribed by the Department of Public Health; the observance of such standard to be determined by periodic inspections under the direction of this same Department.

(3) That the standard to be established should correspond closely or exactly with the list of fifty dairy-rules recommended by the Bureau of Animal Industry of the United States Department of Agriculture, a copy of which is appended.

(4) That dealers be required to remove all milk from the transportation trains immediately upon their arrival, unless in refrigerators; and to deliver the milk of the morning and previous evening on the day of its arrival, unless kept iced.

(5) That dealers be required to have a special milk-room, so situated in relation to their houses as not to be a thoroughfare; that its walls shall be tiled or painted with glazed paint; that its floors shall be made of hard wood, cement, or other composition, or that they shall be covered with linoleum; that the room shall be well ventilated and kept thoroughly clean.

(6) That it be required that all milk-wagons be thoroughly cleansed after each delivery, and that they be so constructed that thorough cleansing is possible; and that all utensils, such as dippers, etc., carried on the wagons, when not in use, be kept in separate, clean cans.

(7) That no dealer or producer be permitted to deliver milk in bottles who has not on his premises satisfactory appliances for the proper cleansing and sterilization of bottles, and who does not properly use them.

(8) That no dealer be permitted to fill bottles outside of his

milk-room; and that dealers should be required to thoroughly cleanse and scald all milk-cans before returning them to the producer.

In addition to the tests that are at present applied by the inspectors of milk, we would suggest:—

(1) That, in order to obtain some idea of the bacterial content of the milk, the degree of acidity of the milk be determined; and that all milk showing an acidity of more than 0.2 per cent. be condemned.

(2) That an examination by sedimentation be made, to determine the amount of dirt present; and, if found in more than minimum-quantity, that such milk be condemned.

We believe all of the above recommendations to be easily applied; absolutely essential; and, if properly carried out, capable of accomplishing great improvement in the quality of the ordinary market-milks. Any dairyman or dealer that is incapable of meeting such requirements should not be permitted to produce or sell milk.

While we realize that a more rigid standard would be desirable from the standpoint of public health, we recognize the impracticability of attempting to establish such standard at the present time. We deem it advisable to approach the higher standard by gradual stages, insisting upon a strict enforcement of the moderate suggestions recommended.

DR. HAMILL then read the following list of rules of the Bureau of Animal Industry, Department of Agriculture:—

THE OWNER AND HIS HELPERS.

(1) Read current dairy literature and keep posted on new ideas.

(2) Observe and enforce the utmost cleanliness about the cattle, their attendants, the stable, the dairy, and all utensils.

(3) A person suffering from any disease, or who has been exposed to a contagious disease, must remain away from the cows and the milk.

THE STABLE.

(4) Keep dairy cattle in a room or building by themselves. It is preferable to have no cellar below and no storage loft above.

(5) Stables should be well ventilated, lighted, and drained; they should have sound floors and walls and be plainly constructed.

- (6) Never use musty or dirty litter.
- (7) Allow no strong-smelling material in the stable for any length of time. Store the manure under cover outside the cow stable, and remove it to a distance as often as practicable.
- (8) Whitewash the stable once or twice a year; use land-plaster in the manure-gutters daily.
- (9) Use no dry, dusty food just previous to milking; if fodder is dusty, sprinkle it before it is fed.
- (10) Clean and thoroughly air the stable an hour before milking; in hot weather, sprinkle the floor.
- (11) Keep the stable and dairy-room in good condition; and then insist that the dairy, factory, or place where the milk goes, be kept equally well.

THE COWS.

- (12) Have the herd examined at least twice a year by a skilled veterinarian.
- (13) Promptly remove from the herd any animal suspected of being in bad health, and reject her milk. Never add an animal to the herd until certain it is free from disease, especially tuberculosis.
- (14) Do not move cows faster than a comfortable walk while on the way to place of milking or feeding.
- (15) Never allow the cows to be excited by hard driving, abuse, loud talking, or unnecessary disturbance; do not expose them to cold or storms.
- (16) Do not change the food suddenly.
- (17) Feed liberally, and use only fresh, palatable food-stuffs; in no case should decomposed or mouldy material be used.
- (18) Provide water in abundance; easy of access; and always fresh and pure, but not too cold.
- (19) Salt should always be accessible.
- (20) Do not allow any strong-flavored food, like garlic, cabbage, and turnips, to be eaten, except immediately after milking.
- (21) Clean the entire body of the cow daily. If hair in the region of the udder is not easily kept clean, it should be clipped.
- (22) Do not use the milk within twenty days before calving, nor for three to five days afterwards.

MILKING.

- (23) The milker should be clean in all respects; he should

not use tobacco while milking; he should wash and dry his hands just before milking.

(24) The milker should wear a clean outer garment, used only when milking, and kept in a clean place at other times.

(25) Brush the udder and surrounding parts just before milking; and wipe them with a clean, damp cloth or sponge.

(26) Milk quietly, quickly, cleanly, and thoroughly. Cows do not like unnecessary noise or delay. Commence milking at exactly the same hour every morning and evening, and milk the cows in the same order.

(27) Throw away (but not on the floor; better, in the gutter) the first few streams from each teat; this milk is very watery and of little value, but it may injure the rest.

(28) If, in milking, a part of the milk is bloody or stringy or unnatural in appearance, the whole mass should be rejected.

(29) Milk with dry hands; never allow the hands to come in contact with the milk.

(30) Do not allow dogs, cats, or loafers to be around at milking time.

(31) If any accident occurs, by which a pail full or partly full of milk becomes dirty, do not try to remedy this by straining; but reject all this milk, and rinse the pail.

(32) Weigh and record the milk given by each cow, if possible; and take a sample, morning and night, at least once a week, for testing by the fat-test.

CARE OF MILK.

(33) Remove the milk of every cow at once from the stable to a clean, dry room, where the air is pure and sweet. Do not allow cans to remain in stables while they are being filled.

(34) Strain the milk through a metal-gauze and a flannel-cloth or layer of cotton, as soon as it is drawn.

(35) Aerate and cool the milk as soon as strained. If an apparatus for airing and cooling at the same time is not at hand, the milk should be aired first. This must be done in pure air; and it should then be cooled to 45°, if the milk is for shipment, or to 60°, if for home use or delivery to a factory.

(36) Never close a can containing warm milk that has not been aerated.

(37) If cover is left off the can, a piece of cloth or mosquito-netting should be used to keep out insects.

(38) If milk is stored, it should be held in tanks of fresh, cold water (removed daily), in a clean, dry, cold room. Unless it is desired to remove cream, it should be stirred with a tin-stirrer often enough to prevent forming a thick cream-layer.

(39) Keep the night-milk under shelter, so rain cannot get into the cans. In warm weather, hold it in a tank of fresh, cold water.

(40) Never put fresh warm milk with that which has been cooled.

(41) Do not allow milk to freeze.

(42) Under no circumstances should anything be added to milk to prevent its souring. Cleanliness and cold are the only preservatives needed.

(43) All milk should be in good condition when delivered. This may make it necessary to deliver twice a day during the hottest weather.

(44) When cans are hauled far, they should be full and carried in a spring-wagon.

(45) In hot weather, cover the cans, when moved in a wagon, with a clean, wet blanket or canvas.

THE UTENSILS.

(46) Milk-utensils for farm use should be made of metal and have all joints smoothly soldered. Never allow them to become rusty or rough inside.

(47) Do not haul waste-products back to the farm in the same cans used for delivering milk. When this is unavoidable, insist that the skim-milk or whey-tank be kept clean.

(48) Cans used for the return of skim-milk or whey should be emptied and cleansed as soon as they arrive at the farm.

(49) Clean all dairy-utensils by first thoroughly rinsing them in warm water; then clean inside and out with a brush and hot water in which a cleansing material is dissolved; then rinse; and lastly, sterilize with boiling-water or steam. Use pure water only.

(50) After cleaning, keep utensils inverted in pure air,—and sun, if possible,—until wanted for use.

After discussion, it was moved and seconded that the report of the Milk Commission receive the support of the Society. The motion was carried.

DR. J. H. MCKEE and DR. MARY BUCHANAN exhibited a patient with

AMAUROTIC FAMILY IDIOCY.

DR. ELEANOR C. JONES read the report of a

CASE OF THYMUS ENLARGEMENT IN AN INFANT,
in which sudden death occurred. (See ARCHIVES OF PEDIATRICS,
August, p. 596.)

DR. JOHN H. JOPSON, in discussion, said that all agree that this case corresponds very closely with the classical description of the status lymphaticus with an associated enlarged thymus, to the enlargement of which death has, until within a few years, been attributed in these cases. The present theory as to the association of sudden death with enlarged thymus is a changed one, owing to the fact that in the status lymphaticus there is a very marked tendency to sudden death, not only spontaneously, but also from slight, usually nonlethal accidents. The majority of these cases of sudden death in which there has been associated general enlargement of the lymphatic glands have followed chloroform anesthesia. Other immediate causes of death in these cases are slight physical and mental shocks. The injection of a dose of antitoxin has even been sufficient to bring about sudden cardiac paralysis. The case reported corresponds in every detail with the description given in the most recent works upon this subject.

DR. GRIFFITH said that no one can know just how the cases of this sort that pass away during the night die, but that those whose death is observed usually die with the symptoms of laryngeal spasm. The fatal result in these cases is wrongly attributed to a spasm of the larynx; but the probable truth is that they are really instances of death due to syncope. A fatal issue in true spasm of the larynx is probably very uncommon.

DR. JONES, in conclusion, said that she had nothing to add, except to ask Dr. Griffith for his opinion in regard to the pressure. She desired to know whether the death in these cases might be due to the direct irritation produced by the pressure of the enlarged gland upon the heart and the great vessels. This was Dr. Jones's first experience with such a case, and she had asked Dr. Griffith for this information because she knew that he had had a great deal of experience with them.

DR. GRIFFITH replied that the theory has often been advanced that death is due to pressure upon the large vessels or upon the

nerves, but that there had not been found any proof of the correctness of this. Besides, many cases in which there is clearly no pressure exerted die with the same symptoms. The inference is, therefore, that pressure is not the cause of the sudden death. There is undoubtedly pressure exerted upon the trachea in some cases; but in these the symptoms come on gradually, and are clearly of a stenotic nature. Dr. Griffith accepted the view that these sudden deaths are due to a neurosis. This neurosis, as well as the anatomical changes in the lymphatic system generally accompanying it, are both the results of faulty metabolism. Children with this neurosis are liable to sudden death from unknown or slight immediate cause.

DR. JOPSON said that one theory as to the cause of the sudden death that had not been mentioned is that there may be an auto-intoxication due to increased activity on the part of the enlarged thymus.

DR. HAMILL said that unquestionably there are cases of enlargement of the thymus gland in which the enlargement is not a part of the status lymphaticus; or, if so, that it is the only manifestation of this condition. He had run across cases of sudden death in new-born infants, in which there was enlargement of the thymus without general enlargement of the lymphatics. Dr. Hamill had had the idea suggested by Dr. Jopson in mind when that gentleman spoke; and, it had occurred to him, also, that some of these cases may be dependent not so much upon an intoxication resulting from deranged function of the thymus as upon some type of infection. In most infections of the new-born, there are marked respiratory disturbances, similar to those which occur in these cases. In certain instances, these respiratory manifestations are of short duration, occurring within a few hours of death. In this particular case, there was some elevation of temperature; and it had occurred to Dr. Hamill that there might have been an infection, resulting in marked disturbance of the respiratory centres and in rapid death.

DR. MILLER said that a certain number of these cases are due to pressure. It is well known that there have been several instances in which the gland has been removed, or partially removed, from children with symptoms of asthma, and the operation has afforded complete relief. In these cases it would be interesting and valuable if there were some method of diagnosing the

enlarged gland. In a case exhibited before the American Pediatric Society in 1901, Dr. Jacobi said that when the child was turned over on its face, the gland could be percussed; but that when it was lying on its back, this was often impossible. Whenever a child has repeated attacks of difficulty in breathing, enlarged thymus should be thought of; and this device, said Dr. Miller, should be borne in mind.

DR. HENRY D. JUMP'S paper on

ENDOCARDITIS FOLLOWING DIPHTHERIA,

was, in its author's absence, read by Dr. Gittings. It is not unusual for dilatation of the heart, with consequent insufficiency of the mitral valve and irregularity of the pulse, to complicate diphtheria. Less commonly, true endocarditis is seen. The first of such cases was reported by John Bridges, in 1864. The most important work in this connection has been done in the diphtheria-wards of the South Branch, of the Boston City Hospital. Hibbard analyzed 1,052 consecutive cases; and found a systolic murmur, an accentuated second sound, and increased heart-dullness in 85, or 8 per cent. In 15 of these, the condition continued for from five to fifteen weeks. In the pathological report of the fatal cases from the same hospital (220) by Councilman, Mallory and Pearce, 7 cases of endocarditis were noted. From 1 of these, the Klebs-Löffler bacillus was isolated. Howard, of Johns Hopkins, and Wright, of Harvard, have each reported a case in which the bacillus was found. The case reported by Dr. Jump was in a child that had had a mild attack of diphtheria. During convalescence, it showed the signs of acute endocarditis—rigor, fever, irregularity of the pulse, increased heart-dullness, and a mitral systolic murmur. These conditions were still present a year later. The mitral valve is the one usually affected; the aortic is more rarely involved.

DR. THOMPSON WESTCOTT exhibited a mechanical device for almost instantaneously

CALCULATING PERCENTAGE MILK-MIXTURES

without using formulæ. The essential principle employed in this device is new, the proportions of cream and milk being expressed as definite fractional parts of the total quantity. In this way, any definite combination of fat and proteid percentages may always

be expressed by the same simple fractional parts of total quantity; therefore this combination holds true, no matter what the total quantity may be, the quantities of milk and cream required being at once found by taking these fractional parts of the total quantity. By an ingenious arrangement of concentric discs, these fractions are immediately indicated for any fat and proteid formula. The quantity of sugar is also rapidly determined, by a series of factors that are really decimal parts of the total quantity of mixture. One-fourth of the total quantity is simply multiplied by the corresponding sugar-factor and divided decimally by 100. By using this device, any of the usual percentage-formulæ may be expressed in terms of the quantities of milk, cream, and sugar, within a few seconds, thus entirely doing away with the usual tedious calculations by means of the algebraic formulæ now in use. A full description of the device and of the underlying principles will soon be published.

Etiology and Treatment of Congenital Muscular Wryneck.—Fridberg (*Deut. Zeitschr. f. Chir.*, Vol. lxi., p. 393) reports the result of his studies in 29 cases of congenital muscular wryneck. Sixteen of these children were breech presentations, 6 were difficult forceps deliveries, and only 7 presented normally by the occiput. In 26 cases the torticollis was seen immediately or shortly after birth; in 3 only did the condition show itself for the first time after the third month. Etiologically the condition therefore, in his opinion, is due in the majority of cases to the pathologic changes arising in the sternomastoid as the result of birth trauma. In isolated cases it may arise from a pathologic position of the head during development of the fetus in utero. Eighteen of the patients were operated on for the condition and in every instance the macroscopic and microscopic picture of myositis was found. Whether a purely degenerative process, the result of the trauma, or whether a bacillary inflammatory infection arises he is not able to decide. The treatment in all cases resolves itself to extirpation or resection of a part of the muscle; in some few cases plastic prolongation of the muscle may be attempted. The clinical details of the 29 cases are appended.—*American Medicine*.

Current Literature.

PATHOLOGY.

Caccia, G.: A Case of Cerebrospinal Meningitis Due to the Hemophilic Bacillus of Pfeiffer. (*Riv. di Clin. Pediat.*, February, 1903.)

The author reports a case of meningitis in a child aged nine months in which the cerebrospinal fluid contained a polymorphous bacterium which does not resist Gram's solution, does not grow on simple agar, but well and in a characteristic manner upon agar with the addition of blood. It is pathogenic to animals on endovenous injection. The case was one of cerebrospinal meningitis, of purulent otitis media and of bronchopneumonia and the secretions from the ear and the lungs contained the same germ, which the author identified as the hemophilic bacillus of Pfeiffer.

Flamim, M.: Bacteriuria in Typhoid Fever. (*Riv. di Clin. Pediat.*, February, 1903.)

The author says that the presence of bacteria in the urine of typhoid patients is still a disputed point, and that, while some authors regard it as a frequent occurrence and as a sure diagnostic sign, others consider it rare and a very uncertain criterion. In order to solve this question he studied the urines of 8 cases of typhoid fever in children from four to nine years of age. In all these cases the diagnosis was confirmed by means of the Widal reaction. The urines were taken at various periods during the illness, the genitals having been previously disinfected with a solution of mercuric chlorid, and a sterilized catheter having been introduced. The urines were collected directly into sterile Erlenmeyer's flasks. In order to differentiate the typhoid bacillus in these urines from the colon bacillus and from other germs, the author used a variety of culture media. He found that of 8 cases, 7 showed the presence of the typhoid bacillus.

There may be bacteriuria in typhoid fever without any albuminuria, but in cases in which there is bacteriuria and albuminuria, the number of bacilli is greater. When there are bacilli

in the urine but no albumin the urine shows microscopic evidences of renal disease, *i.e.*, casts, epithelia, etc. The bacillus is not met with in the urine of typhoid patients during the first week of the disease, and always appears later, during the second or third week. The number of typhoid bacilli found in the urine in these cases was not very large. The author found typhoid bacilli in the urine of patients even during convalescence, an important fact from the viewpoint of infectiousness.

Dueñas, J. L. : Etiology of Infantile Tuberculosis.
(Havana, January, 1903.)

In a lecture delivered at the Hospital Number I., of Havana, the author surveyed the question of heredity and infection in the tuberculous affections of infancy. The influence of heredity in the causation of infantile tuberculosis has been variously interpreted by different authors. Some (Baumgarten) believe that the process of conception is the original source of the tuberculous invasion in the fetus, and that the bacilli enter the ovum with the spermatozoa. Until now this theory has had but few supporters and still fewer experimental facts to back it. It is still nothing but a scientific hypothesis.

The transmission of bacilli through the placenta, the mother infecting her offspring in utero, is another theory. This is not strictly speaking heredity, but congenital tuberculosis, and its occurrence has been proved in the lower animals. In man only 10 cases of fetal tuberculosis were known positively until 1900. Other authors believe that tuberculosis may be transmitted to the fetus and may remain latent for a variable length of time. Such a tuberculosis develops later in infancy or childhood.

Hereditary predisposition to tuberculosis has been assumed as the real basis of the frequency of this disease in children.

The author thinks that heredity and infection are the two principal factors in the etiology of tuberculosis in infants. The occurrence of hereditary infection and hereditary predisposition must be admitted as absolutely proved. Predisposition is an important factor, as it is necessary that the soil be adapted for the growth of the germ before the infection becomes effective. This predisposition is usually hereditary, either because the parents were tuberculous or were suffering from diseases which lowered

the vitality of the offspring. Hereditary predisposition is distinguished from acquired by the greater tendency to a severe and generalized form of the disease in infants. Acquired predisposition arises through hygienic and pathologic causes that tend to diminish the resistance of the organism. The acid intoxication of Czerny is, in the author's view, a cause of an increase in the resistance of the organism against tuberculous infection. The frequency of this infection explains the rarity of tuberculosis in the first years of infancy. As regards the mode of infection of acquired tuberculosis in infants the respiratory passages are the most frequent route, through the mouth. The gastrointestinal route is less frequently the gate of entrance of tuberculosis in children. The use of raw milk in infancy should not be permitted as it is a source of infection.

Gindes, E. J.: Cryoscopy of the Urine in Children. (*Russki Vrach*, Vol. ii., No. 21, p. 789.)

Cryoscopy is based on the physical law according to which the freezing-point of a solution is lowered in a direct ratio to the amount of solids contained in the liquid. The method affords valuable information as to the excretory function of the kidneys.

The author has investigated the urine in childhood in relation to cryoscopy and found the following facts: The freezing-point as determined by molecular saturation is lower in children between 2-13 years than in adults; the average being 1,20-1,30 in childhood and 1,30-2,30 in adult life. This is the most important cryoscopic magnitude. Next in dignity is the relation of the total saturation to the percentage of sodium chlorid; this relation in children does not show any marked difference from the urine of adults. The sodium-chlorid equivalent is lower in childhood, because the quantity of urine is smaller. The daily quantity of so-called Bouchard's molecules is 2,000-3,000 in children, and 2,000-2,500 in adults.

These cryoscopic data show some fluctuations during the twenty-four hours, being influenced by exercise and rest more than by food. When a healthy child is kept in bed day and night, the fluctuations are smaller, because the usual difference between rest at night and exercise during the day is minimized.

Thus it will be noted that cryoscopy in children gives results which though varying within considerable limits, are constant

in the average. With the transition from infancy to childhood the cryoscopic figures show a marked increase, depending on the change of food and other conditions; the transition from later childhood to adult life is not accompanied by a great change in the cryoscopic data.

Josias, A. and Toslemer, L. : The Widal Reaction in Children. (*Le Progrès Méd.*, May 10, 1903, p. 354.)

Of 50 cases of typhoid fever in children 44 gave a positive Widal reaction on entrance to the hospital; 5 showed the reaction after repeated examination. In one the test was negative on the tenth day and was not tried thereafter. The cases are tabulated as follows:—

I. Those giving the reaction on entrance:—

NO. OF PATIENTS.	AGGLUTINATION.	AGE OF PATIENT.
1	3rd day of illness	9 years.
3	5th " " "	8, 10 (2).
2	6th " " "	7, 12.
8	7th " " "	2, 5, 7, 11, 12 (2), 14.
9	8th " " "	9, 8, 11 (2), 12 (2), 13, 14, 15.
10	9th " " "	6, 9, 13 (3), 14 (3), 15.
4	10th " " "	4, 10 (2), 14.
2	11th " " "	4, 13.
1	12th " " "	2.
1	13th " " "	10.
1	14th " " "	10.
1	15th " " "	10.
1	16th " " "	8.
1	20th " " "	4.

II. Those giving reaction after repeated examination.

1	14th day of illness	14½.
1	21st " " "	8½.
1	30th " " "	15.
1	10th " " "	14.
1	18th " " "	14.

The sero-reaction is subject to variations as in adults but usually occurs before the tenth day. Its delay does not seem to coincide in any way with the severity of the disease. Mention is made of the fact that the injection of the antityphoid serum of Chautemesse does not affect the agglutination test.

Richon : A Case of Addison's Disease with Integrity of the Suprarenal Capsules. (*Arch. de Méd. des Enf.*, June, 1903, p. 350.)

A case is reported of this disease in a girl ten years. Her father died of tuberculosis. The child had been sickly since birth

but only of late were the symptoms of Addison's disease, manifest:—continual fatigue, loss of appetite and mental depression, followed by marked pigmentation on the face, hands, and folds of the skin. Prolonged expiration was noted beneath the clavicles, otherwise no organic abnormality. After fourteen days of observation, a subcutaneous injection of suprarenal extract was made, provoking marked restlessness and vomiting. The injections were repeated at weekly intervals until the child was discharged improved. Three months later she returned, showing very few symptoms of the disease. Eleven months after her first entrance to the hospital, she came back again, with vomiting, abdominal pain and cough, marked pigmentation, and loss of flesh and strength. She became rapidly worse and died two months later in a state of asthenia.

Autopsy showed an infiltration of the upper lobe, slight fibrinous pleurisy; circular ulcers in the lower portion of the ileum and perforation below the ileocecal valve with general peritonitis. The kidneys were congested, but the adrenals showed no trace of abnormality. No change of note was visible in the semi-lunar ganglion, or ganglia of the solar plexus.

Hektoen, L. : Anatomical Study of a Short-Limbed Dwarf.
(*American Journal of the Medical Sciences*, May, 1903, p. 751.)

The description is of a fairly symmetrical micromelic dwarf, forty-five years old, of fair intelligence. The thyroid was fibroid and without demonstrable thyroïdin. The cranial vault was relatively large, made up of 172 Wormian bones, but giving no evidence of premature ossification of the synchondroses at the base of the skull. There were marked curvatures of the spinal column, old fractures of many of the ribs and left humerus; great deformity of the pelvis; curvatures of many of the (relatively short) long bones; general and pronounced osteoporosis, and absence of trident fingers.

Some features of the case are best explainable on the score of osteogenesis imperfecta, others on that of chondrodystrophia fetalis, but the picture of either of these diseases is incomplete in some essential feature. Thus the premature synostosis of the cranial base in chondrodystrophia is not present, nor any evidence of extensive multiple fractures such as are a striking characteristic of osteogenesis imperfecta. A combination of both diseases complicated later with genuine rickets might be suggested, but no final conclusion seems attainable.

MEDICINE.

Pearson, S. V. : The Prevalence of Pneumonias in Infancy.
(*Lancet*, June 27, 1903, p. 1,808.)

Data are brought forward to prove that croupous pneumonia is more common during infancy than at any other succeeding age. The prevalence of croupous pneumonia cannot be gauged by its effects on the death rate, because its mortality is low. At Shadwell during the three years, 1899-1901, 311 patients were admitted into the hospital suffering from croupous pneumonia. Of these 121, 40 per cent. were under two years of age, 137 were between two and six years, and 53 were between six and fourteen years. It is obvious from these figures that amongst children the commonest age-period for croupous pneumonia is during infancy.

During the time the 121 cases of lobar pneumonia in infancy were admitted there were received 172 cases of bronchopneumonia in infants. The figures, therefore, show that lobar pneumonia, while not so common as bronchopneumonia in infancy, does not fall far short of it in the frequency of its occurrence.

Bondurant, E. D. : The Hook Worm Disease in Alabama.
(*New York Medical Journal*, July 4, 1903, p. 8.)

The subject of uncinariasis in America has been exhaustively studied by Dr. C. W. Stiles, chief of the Division of Zoology, in the Marine Hospital Service. Stiles' monograph is included in the report of the Bureau of Animal Industry for 1901. Bondurant has diagnosed 50 cases of uncinariasis in patients from five counties in Alabama, with 1 case from Mississippi, and 1 from West Florida. The symptoms are those of severe anemia, with marked mental and physical feebleness, apathy, indifference and inability and disinclination to work. The diagnosis is made from the finding of the ova in the patient's feces. These ova are twenty times the size of a red blood cell, oval in shape, with a transparent, colorless, but distinct capsule and a gray or brown granular segmented protoplasm. The number of worms in the bowel in a given case may be enormous. In 2 cases counted by Parker they numbered 953 and 1,700.

The prognosis in uncinariasis is uniformly good. The treatment consists in the administration of male fern or thymol, and

the treatment of the anemia. Thymol is usually employed in doses of a dram for a half-grown child, or 40 grains for a younger or weaker one. It is usually administered in capsules, and no solvent fluids such as alcohol or oil are allowed for some time after its administration. Serious symptoms of poisoning have developed in some of the cases, but the result is usually satisfactory.

Schamberg, J. F.: Some Clinical Observations on Small-Pox. (*The Journal of the American Medical Association*, June 27, 1903, p. 1,769.)

With relation to the contention of the Viennese School that variola and varicella are one and the same disease, Schamberg records an epidemic of chicken-pox in a ward of children convalescing from small-pox. Thirty-five of the children were affected. The case of a five-year-old girl with coincident small-pox and chicken-pox is reported. In the differential diagnosis a number of points are emphasized. The vaccinal condition of the patient, the initial symptoms, the constitutional symptoms are all of importance. As to distribution of the eruption small-pox usually affects the exposed surfaces, chicken-pox the covered. Chicken-pox may occur on the palms and soles. The number of lesions on the skin is not of importance. In chicken-pox as many as 3,000 have been observed. The incubation period of chicken-pox is longer and more variable than that of small-pox.

Robertson, W. G. A.: The Complications and Sequelæ of Pertussis. (*Scottish Medical and Surgical Journal*, June, 1903, p. 485.)

Pertussis ranks third amongst the fatal diseases of children in England, and of the deaths due to it three-fourths occur in children under two years of age. The complications and sequelæ are so numerous and so prone to affect very young children that the disease ought always to be considered one of the most dangerous of infantile troubles. In the respiratory system, bronchopneumonia, emphysema, pneumothorax, bronchiectasis and phthisis are met with. A fatal case of edema glottidis has been recorded by Beneke, and many cases of death have been attributed to spasmodic croup. Of the nervous complications convulsions and paralyses are common. The latter are of several

varieties and of undetermined causation. Hemiplegia, diplegia, localized paralysis and ascending paralysis have all been observed. In the digestive system vomiting of blood, catarrhal enteritis or colitis, and peritonitis may occur. Dilatation of the heart from the strain put upon it may occur. Albuminuria and glycosuria are met with. Subconjunctival hemorrhages, transient loss of vision, or strabismus may be the effects upon the eye. The membrana tympani may be ruptured and blood may gush from the ears. In the blood a high leukocytosis appears early and precedes the whoop.

Kerr, E. K.: Report of a Case of Congenital Pulmonary Stenosis. (*Chicago Medical Recorder*, June, 1903, p. 418.)

The patient was a boy, eight and a half years old. The family history was good. The pregnancy and labor were normal. Three children born after this one were free from any like complaint. The patient's only complaint was shortness of breath on exertion. He was well developed and well nourished. The examination of the heart showed: A diffuse apical impulse over a large part of the precordium, a double beat at the apex, a systolic thrill over the pulmonary area, systolic and diastolic murmurs at the apex, and a loud, harsh, blowing, systolic murmur over the pulmonary valve; the area of cardiac dullness was enlarged both to left and right. The liver was palpable; the spleen was not felt; the fingers and toes were clubbed. The diagnosis is discussed at length.

Rhodes, Herbert: The Value of Lumbar Puncture in General Practice. (*British Medical Journal*, July 11, 1903, p. 73.)

The writer summarizes the value of lumbar puncture in the following way:—

(1) What can be done for the patient? (a) Relief of pain, headache, etc. (b) Coma is diminished, and consciousness may return after coma has been established through the increase of intracerebral pressure. (c) Lumbar puncture may indicate the necessity or otherwise for operation. (d) It has been a definite aid toward recovery. In several cases of post-basal meningitis, a child, apparently dying, has tided over the frequently-recurring crises of dyspnea, cyanosis, associated perhaps with convulsions,

and ultimately recovered when lumbar puncture has been systematically employed to reduce the excessive intracranial pressure.

(2) What can lumbar puncture do for the general practitioner?

(a) It may correct or confirm a diagnosis. Often post-basal meningitis can be early diagnosed from other forms of meningitis by the presence of Still's intracellular diplococci in the spinal fluid.

(b) By rendering less intense a coma from excessive intracranial pressure, it obviates the necessity of nasal feeding and other such tedious, and often dangerous, nursing procedures.

Sibley, Lane, and Rowell: Case of Pyopericarditis. (*British Medical Journal*, May 23, 1903, p. 1,102.)

The case may be briefly summarized thus: A healthy lad of sixteen developed a sore throat which in a day or two was followed by most of the symptoms, but without very distinct physical signs, of pneumonia of the left base. On the eighth day after the onset of the attack an apparent crisis occurred. The temperature rose and fell irregularly for the next three days. Then came a period of five days with the temperature generally raised and with some slight increase of all the symptoms. For the next eight days the temperature was usually markedly subnormal. At no time was either an endocardial or exocardial murmur heard. A left empyema was then opened, but without the relief to the general symptoms which had been expected. Ten days afterwards the pericardium was opened, but with only a slight temporary general improvement, soon followed by a more irregular temperature. The patient died thirteen days after the pericardium had been opened, and twenty-three days after the operation on the pleura. The immediate cause of death appeared to be the result of internal hemorrhage from the heart, due to rupture of one or more small abscesses in its walls. The bacteriological examination proved the presence of pneumococci in great numbers in the blood, death being the result of a general pyemia, due to the pneumococcus.

Riviere, C.: The Incidence and Mortality of Croupous Pneumonia in Infancy. (*The Lancet*, July 18, 1903, p. 155.)

The writer's paper is based upon two years' observation of cases in the East London Hospital for Children, Shadwell. He sums up, as follows:—(1) that croupous pneumonia occurs in infants below the age of two years as frequently as, and probably

more frequently than, in older children; (2) that in infants a diagnosis between croupous pneumonia and bronchopneumonia is often impossible, many cases of bronchopneumonia with lobar consolidation appearing in the postmortem room with a diagnosis of croupous pneumonia; (3) that on account of this difficulty statistics based on diagnosis alone are quite untrustworthy; (4) that this error can be largely eliminated after the manner described above; and (5) that the mortality in croupous pneumonia is largest in the first year of life (25 per cent.), is considerable below the age of two years (15.4 per cent.), but for children above this age is comparatively small (2.3 per cent.).

Gilford, H. : Ateleiosis ; a Form of Dwarfism. (*The Practitioner*, June, 1903, p. 797.)

The word ateleiosis (*ἀτελείωσις*, not arriving at perfection) has been applied to a peculiar disorder of development. Of this disorder there appear to be two varieties. In the one there is conspicuous delay of both growth and development up to the onset of puberty. The sexual system then matures, and the development of the body becomes arrested, leaving the individual sexually complete, but in other respects with the proportions and outward appearance of stereotyped childhood. Hence in this variety there is infantilism up to puberty and after that period there is dwarfism only. But in the second variety there is as a rule both dwarfism and infantilism throughout the whole of life, for the sexual system never matures, while growth may continue up to the age of thirty or even later.

This kind of ateleiosis resembles cretinism in that it varies in character according to the age at which it begins. Hence it may be divided into three groups:—(1) We have first ateleiosis beginning in fetal life. (2) In the second group ateleiosis begins during infancy or early childhood. It is then stamped with the facial and other features which distinguish this time of life. (3) In the third group ateleiosis begins at some later period of development and the characters of the disease are more indefinite. They consist in a perpetuation of the height and other distinguishing features of the period of youth. Five illustrative cases are described in detail.

Gordon, F. N.: Congenital Aortic Stenosis. (*St. Louis Courier of Medicine*, May, 1903. p. 325.)

A boy, four months old, was found to have a loud systolic murmur, heard practically all over the chest, without cyanosis or any other symptom of cardiac disease. Four months later slight cyanosis was observed. Two months after that he developed evidences of rachitis. He was put upon appropriate treatment but soon developed an acute sickness, characterized by vomiting and high fever, in which he died.

The heart was found to show an enormous hypertrophy of the left ventricle, which extended to and formed the apex. There was marked thickening of the aortic valves and an extreme degree of stenosis. The mitral valve was much increased in size and thickness. The right ventricle and its valves were normal. Both auricles were normal; there was a small opening between them. There was no evidence of patent ductus arteriosus.

Cotton, A. C.: Typhoid Fever in Infancy and Childhood. (*The Clinical Review*, June, 1903, p. 161.)

The absence of a complete symptom-complex and the rarity of the demonstration of typical ulcers in the intestines long militated against the diagnosis of typhoid in infants and children. Bacteriologists, by means of the demonstration of the bacillus of Eberth and the Widal reaction, have been able to clear up the question of diagnosis and to show that no age is exempt from the invasion of the typhoid bacillus. The late epidemic in Chicago has served to demonstrate the frequency of the occurrence of unsuspected typhoid in children. In many instances cases presenting symptoms of the ordinary summer gastroenteric disturbances, or of malaise with slight rise of temperature, gave a Widal reaction and careful observation demonstrated the undoubted typhoid infection. Cotton reports 20 cases from his service in the Presbyterian Hospital during the months of August and September. The youngest patient was three years, the oldest twelve years of age. The Widal test was positive in all but one. The diazo reaction was found in only 12 cases. Roseola was present from the sixth to the tenth day in all but 2 cases. Tub baths were regularly employed, the temperature of the bath at the beginning being 95° and later being lowered to between 70° and 80°. The baths lasted from ten to twenty-five minutes. There were no deaths and no serious complications in the series.

Brush, E. F.: Aphthæ and Herpes. (*Journal of the American Medical Association*, June 20, 1903, p. 1,700.)

Brush reports the result of investigations undertaken to discover if there was a disease in children which was characterized by an aphthous eruption on the buccal mucous membrane and resulted from the drinking of milk from cattle suffering from foot and mouth disease. During the past thirty years there has been no foot and mouth disease in this country, except for the epidemic in New England last winter. Brush succeeded in finding in a family which had used infected milk, one child that had suffered from fever, diarrhea and vomiting, blisters on the tongue and lips. The affection promptly subsided on stopping the use of the infected milk. The literature of the subject is given *in extenso*.

Gittings, J. C.: Edema of the Glottis. (*New York Medical Journal and Philadelphia Medical Journal*, July 25, 1903, p. 169.)

A boy, five years old, developed scarlet fever. On the fifth day a small patch of yellow membrane was noted on the left tonsil, but no culture was made. On the eighth day a right-sided cervical adenitis developed, suppuration followed, and the abscess was opened on the tenth day. Six days after the disappearance of membrane and the fourteenth of the disease, the child developed a laryngeal cough with difficulty in articulation. During the evening the child developed obstructive dyspnea with slight cyanosis. The voice was preserved. Digital examination disclosed an edema of all the tissues about the laryngeal aperture. Intubation was tried with practically no relief. Steam inhalations with glycerin and sodium carbonate were given, and hot poultices applied to the neck, with gradual improvement and final recovery. The distinction between edema of the larynx and acute edematous laryngitis is discussed at length.

Ostheimer, M.: A Case of Probable Gummata of the Liver in a Child of Six. (*Journal of the American Medical Association*, June 6, 1903, p. 1,558.)

A child of six years came under treatment for pain in the right side, fever, nausea, vomiting, and jaundice. The father had had syphilis twenty-one years before. The mother had had thirteen pregnancies, in seven of which she aborted, and there were but two living children, one aged twenty-three years, the other being the patient. The child was put on antisyphilitic treatment

and improved. Later, the treatment having been neglected, the child developed ascites and nodules were felt on the enlarged and tender liver. The spleen was not palpable. There were no other evidences of syphilis. On antisyphilitic treatment the ascites, the nodules, and the enlargement of the liver all disappeared.

Cozzolino, O.: Scarlatiniform Erythema. (*Riv. di Clin. Pediat.*, February, 1903.)

The author reports 2 cases in which a scarlatiniform rash followed by desquamation and recurring with relapses was the chief feature. The author found that there was no difference between the period of incubation of scarlet fever and that of scarlatiniform erythema, but that in the latter the invasion may be at times gradual instead of sudden. No substantial difference exists between the appearance of scarlatiniform rash and scarlatina. The desquamation which occurs as a rule from the second to the fourth day after the appearance of a scarlatiniform rash, according to Besnier, may, however, begin only after the redness has considerably paled. As a rule, the desquamation begins a little earlier in scarlatiniform rash than in scarlatina. In scarlatiniform rash the tonsils are free from lesions or are but very slightly affected. As a rule the kidneys remain intact, and in no case does a true nephritis develop, as happens in scarlet fever. The glandular system is spared completely or is but very slightly affected. The eruption of a scarlatiniform erythema appears on the face but does not spare any area of the face. The eruption may appear at irregular intervals and the relapses are not always milder and less marked than the original attacks. The erythema is not contagious. It is probably due to gastrointestinal intoxication and the majority of cases of so-called relapsing scarlatina are instances of scarlatiniform erythema.

SURGERY.

Rutherford, H.: Child Operated on for Intussusception at the Age of 3 Months. (*Glasgow Medical Journal*, June, 1903, p. 426.)

William M., aged three months, was admitted to the Royal Hospital for Sick Children on November 16th last, having been ill for nearly forty-eight hours. The patient was a stout, healthy-

looking infant; face somewhat sunken; temperature, 99.8° (rectal); pulse, 120, regular and of good tension. The abdominal wall was lax, and from a little below the left costal margin down into the left iliac region an elongated tumor mass was easily palpable. *Per rectum* the apex of an intussusception could be felt about an inch and a half from the anus. The abdomen was opened for about three inches immediately to the left of the umbilicus, and with some difficulty the long intussusception was reduced. The apex of the intussusception was formed by the ileocecal valve. The child made a good recovery.

Elder, J. M. : A Rare Case of Congenital Umbilical Hernia.
(*Montreal Medical Journal*, April, 1903, p. 269.)

At the birth of a male infant a cystic tumor was observed at the umbilicus, apparently attached to the cord, whose tissues appeared to spread over it. The tumor was the size of an orange, the covering was entirely serous, and its contents were continuous with those of the abdominal cavity. The serous covering was already (the third day) infected. Operation was done. The sac was opened, its contents found to be the cecum and appendix, the peritoneal surface of which already showed signs of inflammation. These parts were washed with saline solution and returned into the abdomen, the sac was cut away and the abdominal wound closed. The child made a good recovery. The case is considered an example of congenital hernia of the cord.

Rose and Slessor : Case of Acute Obstruction of the Bowels by Bands. (*The Scottish Medical and Surgical Journal*, May, 1903, p. 425)

A girl, three years of age, after eating an orange, including the skin, vomited and continued sick, until at the end of four days symptoms of obstruction of the bowel appeared. She was admitted to the Royal Aberdeen Hospital for Sick Children in a state of collapse. An operation was done and the intestines found obstructed just above the ileocecal valve and again a foot higher up the bowel by mesenteric bands. These were ligated and cut and the abdomen closed. The child died almost immediately, although saline injections and even massage of the heart through the reopened abdominal wound were tried.

Lile, S. : A New Method of Drainage in Empyema. (*New York Medical Journal*, July 4, 1903, p. 25.)

The feature of the method is a drainage tube described thus:— A hard rubber tube, three-sixteenths of an inch in diameter and two inches and a half long, with a cup-shaped funnel on each end, the cups being five-sixteenths of an inch in diameter (outside measurement). The tube is bent at an angle, a little greater than a right angle, and not in the centre but so as to leave one arm of the angle one inch, and the other one inch and a half, from the angle. The short arm is placed in the pleural cavity. On the long arm a flattened surface is made above and below on which the ribs rest; this prevents it from turning or becoming misplaced in any way. It will readily be seen that it can slip neither in nor out; yet it drains perfectly. Irrigation can be done through this tube with perfect ease. The tube being inserted, the wound is now closely stitched around it and dressed. After the tube has been worn a few days it can be almost painlessly removed and replaced. The patient suffers no pain, and expresses himself as feeling comfortable.

Comba, Carlo: The Treatment of Acute Laryngeal Stenosis in Measles. (*Riv. Clin. Pediat.*, March, 1903.)

The author analyzes the cases of acute laryngeal stenosis accompanying measles which occurred in the Pediatric Clinic at Florence. He divides the cases into those not due to diphtheria, purely to measles, and those due to the presence of a complicating diphtheritic infection. In the cases of nondiphtheritic laryngeal stenosis there are some in which the obstruction of the larynx is so severe that intubation, or even tracheotomy, is necessary. These are cases with a bad prognosis. The chief danger of these cases is the extension of the inflammatory process to the lungs in the form of a very malignant acute bronchopneumonia. In these forms of stenosis occurring in the early stages of measles it is not advisable to insist upon the retention of the tube for a long time on account of the formation of ulcers in the larynx which is very apt to occur. The mortality in these cases was 61.1 per cent.

In cases of diphtheritic laryngitis following or accompanying the later stages of measles the prognosis was better, the results of intubation giving only 30 per cent. mortality. In five children tracheotomy was performed after intubation for various reasons, e.g., because it was impossible to extubate, because the tube was

permanently occluded with membrane or because the signs of laryngeal ulceration began to appear. In children below two years of age little can be expected from intubation, and according to the author and his school, tracheotomy should then be preferred as the primary operation. In children over two years of age and in those without extensive bronchopneumonic complications intubation should be used in preference. In order to avoid ulceration, too large tubes should not be used and they should not be left in place too long.

Comba, Carlo: Large Foreign Body in the Air Passages. Tracheotomy. Extraction. Recovery. (*Riv. di Clin. Pediat.*, April, 1903.)

The author reports a case of a large foreign body, a lima bean, impacted in the air-passages of a boy aged three and one-half years. The child was troubled with accesses of cough for a day. On the second day there occurred two attacks of sudden suffocation. During the second attack superior tracheotomy was hastily performed and a pseudo-membrane-forceps was introduced to search for the foreign body in the bronchi. During this operation the child ceased to breathe. A hard rubber esophageal sound was then introduced and reached the foreign body in the bronchus. Oxygen was passed through this sound into the lungs to keep up artificial respiration while the search for the foreign body was going on. The large lima bean which had penetrated into the bronchus was then removed piece meal, the child having recommenced breathing. When the last piece was removed, the patient breathed freely. The manoeuvre described above, introducing a small hard-rubber esophageal sound and passing oxygen through it into the lungs, is recommended by the author in tracheotomies for foreign bodies in which the obstruction cannot be very quickly reached and extracted. The patient made a good recovery.

Kusnetsky, D. P.: Ovarian Cancer in a Girl of Fourteen Years. (*Journal Akusherstra*, etc., January, 1903.)

Primary carcinoma of the ovary is not very rare in childhood, occurring usually in the form of medullary cancer. The author reports a case of this kind. The symptoms were pain and abdominal tumor. Operation disclosed the growth on the right ovary, the size of a large fist. Both ovaries were removed. No recurrence took place.

Donoghue, F. D.: Avulsion of the Tibial Tubercle, Occurring in a Girl of Thirteen. (*Boston Medical and Surgical Journal*, June 11, 1903, p. 640.)

The history of the case is as follows:—Jennie F., aged thirteen, came to the Boston Dispensary March 18, 1903, complaining of pain about knee and difficulty in walking. About five weeks before, while vaulting over a horse in the gymnasium, she fell, striking a cushion with her knee. Following this there was pain and swelling, but it troubled her little except when trying to kneel. Stiffness of the knee had increased, and she had more difficulty walking and more pain after standing for any length of time. The pain was always more or less localized at site of tibial tubercle when walking, but radiated up over knee when she was quiet. Examination showed a tender spot corresponding to an increased prominence at the site of the tubercle. No difference in the level could be detected between the patellæ. A provisional diagnosis of avulsion of the tubercle was made, which the x-ray confirmed.

Collier, H. S.: A Case of Double Congenital Hernia. (*The Lancet*, June 6, 1903, p. 1,592.)

A boy, two years old, was admitted to the Hospital for Sick Children, for a double rupture. At operation upon the right side the sac was found to contain small intestine and on further examination a paraperitoneal hernia of a portion of the bladder was found. Three weeks later the left side was operated upon and in this sac the cecum, appendix, an inch of ascending colon, and two inches of ileum were found. Recovery was straightforward.

Long, S. H.: A Case of Laryngeal Stenosis Following Tracheotomy; Intermittent Intubation for 129 Days; Recovery. (*The Lancet*, July 25, 1903.)

A boy, aged six years, was tracheotomized for laryngeal stenosis occurring in the course of diphtheria. After three days attempts to get along without the tube were made, but it was always returned to relieve recurrent dyspnea. On the thirteenth day intubation was resorted to. In four days the tracheotomy wound had healed and the intubation tube was removed. At the end of three-quarters of an hour the child, previously comfortable, became livid and ceased to breathe. To save life the tracheotomy wound was reopened. Later intubation was again resorted to and the tube was ultimately worn 129 days, intubation being performed in all eleven times. The boy recovered.

HYGIENE AND THERAPEUTICS.

Gagnoni, E.: The Influence of Sterilization by Soxhlet's Method upon the Phosphorus Compounds of Cow's Milk. (*Riv. di Clin. Pediat.*, March, 1903.)

Sterilization of milk by heating at high temperatures precipitates a portion of the phosphorus compounds. These exist in cow's milk in proportions larger than those obtaining in mother's milk, but in cow's milk the phosphorus is largely tied to inorganic bodies, while in mother's milk it exists largely as organic compounds. The organic combinations of phosphorus are those which are available in the nutrition of the child. It is important to know, therefore, just how much of the phosphorus compounds of cow's milk are precipitated by heat and, also, whether said compounds could be redissolved or distributed throughout the milk by simply shaking the bottle before using a quantity of sterilized milk, as Marfan recommends. The author found on experimenting with a view of determining this question, that sterilization with Soxhlet's method does not produce any changes in the organic and inorganic compounds of phosphorus in cow's milk that can be appreciated with any means of research known at present. On the other hand sterilization by boiling, as it is done for industrial purposes, does precipitate both organic and inorganic phosphorus compounds of cow's milk, and considerably impairs the nutritive qualities thereof. The effect indicated is probably the basis of many of the nutritive disorders observed in infants fed on sterilized milk, and the use of such milk as has been exposed to too high temperatures is therefore to be condemned.

Solares, F. Vidal: The Therapeutic Use of Blood Serum. (*Archiv. de Ginecopat. Obstet. y Pediat.*, April 25, 1903.)

The author strongly recommends the use of serum from the blood of bullocks, as a nutritive agent in diseases of children. He found that the plasma of the ox is richer in albuminous substances and more efficient in general as a nutrient substance than the muscle-juice recommended by Richet and Hericourt against tuberculosis. The serum is prepared in the usual manner of preparing blood serums, except that it is sterilized by fractional heating, so that it does not lose the specific action it may have upon tuberculosis, the effect attributed to fresh muscle juice. In various conditions of debility in children and also in tuberculosis the serum

of bullock's blood has a very marked beneficial effect, given by mouth or by rectum. It improves digestion, acting as a peptogenic substance. It stimulates nutrition and has a special and specific action upon the cells which become less sensitive to microbic toxins under the influence of the serum treatment. In anemias, chlorosis, purpura, rickets, severe diarrheas and difficult convalescences this serum may be given hypodermically with good results.

Concetti, Luigi: The Phosphorus Treatment in Rickets.
(*Riv. di Clin. Pediat.*, January, 1903, p. 24.)

While the use of phosphorus in the treatment of rickets is now favored by the majority of pediatricists throughout the world, there are still a number of authorities who not only deny the efficacy of this remedy but also warn against the possibility of phosphorus poisoning, citing from time to time some cases in which toxic symptoms arose after the use of antirachitic solutions. These cases of phosphorus poisoning, in the author's opinion, were due to the defective solution of the drug in the excipient used, in the majority of instances, oil. The larger portion of the phosphorus which is apparently in solution at first, gradually precipitates toward the bottom of the bottle, and so the first doses of the solution contain but very small amounts of phosphorus, while the last portions contain quantities that easily could produce poisonous symptoms. These accidental poisonings, therefore, cannot be blamed on the method of treatment, but rather upon the manner of preparing the oily solutions of phosphorus. Even if the solution be well shaken every time before giving a dose, the poisonous effects of phosphorus can be avoided. The author has administered the oil of phosphorus to a thousand children, and has never seen a case of poisoning.

Another defect in the preparation of the solutions of phosphorus, is that the active ingredient of the solution is volatile and that the strength of the solution seriously diminishes with age, if it be improperly prepared and kept.

In order to obviate these difficulties, the author advises to dissolve first a small amount of the phosphorus, say 10 cgm., in a small quantity of ether, and then to mix this ethereal solution with a little oil of almonds, heating gently on the water-bath in an Erlenmayer flask, so as to favor the complete solution of the phosphorus, while the ether is evaporated. This concentrated solution

of phosphorus in oil is next incorporated in a larger volume of cod-liver oil. Every one hundred grams of the oily excipient should contain 1 cgm. of phosphorus and the solution should be immediately bottled and carefully sealed. The bottles should be of comparatively small size. In this way the solution may be kept for a long time without losing its phosphorus. The author remarks in passing that the credit for originating the phosphorus treatment of rachitis does not belong to Kassowitz, but that this writer has done more than any one else to revive the practice and to make it popular. Hahnemann, Trousseau, and others had tried this mode of treatment of rickets before Kassowitz. In cases in which the child cannot take cod-liver oil, the phosphorus may be dissolved in almond oil or olive oil, and the oily excipient may be emulsified in a solution of gum arabic and sugar. The dose to be given should be such as to contain $\frac{1}{20}$ of a centigram of phosphorus, morning and evening, in a teaspoonful before meals. The effects of this treatment are not, as has been claimed by some, due to the cod-liver oil, but to the phosphorus; for cod-liver oil has been given in much larger doses without the rapid results that can be obtained with phosphorus. Nor is the beneficial effect of this treatment due to the hygienic measures which are adopted coincidentally, for in dispensary work, where the results of phosphorus can be seen plainly, the hygienic measures which are recommended to mothers do not amount to much, and, besides, hygienic measures always work slowly, while phosphorus produces very rapid results. The author reports 12 cases of rickets in which the symptoms were more or less well-marked. He recommends the use of this method of treatment in rachitis, and thinks that its efficacy cannot be disputed.

Fede, Francesco, and Finizio, Gaetano: On the Value of Hydrochloric Acid in the Digestion of Casein. (*Pediat.*, January, 1903, p. 22.)

The authors present an elaborate study of the comparative properties of the caseins of woman's milk, cow's milk, and of the milk of the ass and the goat. They conclude that each casein behaves differently in its quantitative relation to hydrochloric acid. This shows that there are certain biological differences between the various caseins, and in all probability there are differences in the intimate structures of their molecules. The coefficient of

acidity in the different caseins oscillated within sufficiently wide limits to warrant this deduction. In examining the casein of boiled cow's milk, the author found that while the coefficient of hydrochloric-acid-acidity in this casein was identical with that of raw milk, the coefficient of lactic-acid-acidity was higher in boiled milk. These researches also prove that the casein of woman's milk is more nearly related to that of ass's milk than to that of cow's milk, and that goat's milk must be placed between ass's milk and cow's milk. The practical conclusions which the authors draw from these studies are: (1) That in the treatment of dyspepsia in infants, the administration of hydrochloric acid is to be preferred to that of lactic acid, and (2) that taking into consideration the constitution of the casein, the best substitute for woman's milk is ass's milk.

Waugh, W. F.: Atropin in Cholera Infantum. (*American Medicine*, July 25, 1903, p. 136.)

In the worst stages of cholera infantum Waugh advises the hypodermic injection of 0.1 mg. or more of atropin. In response, the blood returns to the brain, the face flushes, the pin-point pupils relax, the vomiting and purging subside, and the pulse can once more be felt. Every element of the disease, every symptom that threatens life, is antagonized by this many-sided remedy. Morphin should not be added to the injection. The patient may be kept continuously under the influence of atropin. While the alimentary tract is being flushed and disinfected, and the cycle of the attack is completed.

Duckworth, Dyce: Case of Infective Endocarditis Successfully Treated by Rectal Injections of Antistreptococcus Serum. (*British Medical Journal*, May 23, 1903, p. 1,195.)

A boy, of fifteen years, came under treatment for an illness characterized by anemia, prostration, recurrent chills, a systolic apex murmur, and an eruption at first resembling erythema nodosum, and later becoming hemorrhagic. He was first treated with yeast, two or three tablespoonfuls, three times a day. Later he received antistreptococcus serum, at first by subcutaneous injection, and then by rectum, 10 c.c. being given daily. The latter medication seemed to have a beneficial influence. The serum treatment was continued for more than a month and the boy made a good recovery.

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Original Communications.

DISCUSSION ON THE RELATION OF THE BACILLUS OF SHIGA TO THE SUMMER DIARRHEAS OF CHILDREN.*

DR. SIMON FLEXNER, of Philadelphia, opened the discussion thus:—

“Mr. President and members of the Pediatric Society, I wish to express my great pleasure at the invitation extended by your officers to present to you my experience, gathered chiefly during the past summer, in respect to the bacteriology of the dejecta of the intestines in cases of so-called summer diarrheas, which may be of some use in clearing up at least the gravest of cases of this very important and hitherto very obscure disease. You all know, of course, that there has been no want of effort to discover the cause of these diarrheal diseases, but very little, if any, definite information has been gathered or had been gathered, with reference to the cause of diarrheal diseases, until the observations of which I shall speak. You are all familiar with the work of Escherich and his pupils, of Booker and other investigators in this country, and familiar with the fact that their results have left the etiology of the diarrheal diseases of infants without a solution. We have according to their results a number of possible etiological factors, chiefly bacteriological, present especially in cities, which may or may not be the causes of such disease. During the last few years the introduction of a slightly new method of approaching the subject of the bacteriology of certain forms of dysentery has met with such success in unraveling this complicated and very difficult disease in adults that it seemed that perhaps the application of the same method to the study of the bacteriology of the diarrheal diseases of infants might yield similar results, or results at least of value.

* Held at the meeting of the American Pediatric Society, Washington, D. C., May 12, 13 and 14, 1903.

I became interested in the study of dysentery some three or four years ago, while on an expedition to the Philippine Islands. While there we had the opportunity of studying a considerable number of cases of acute dysentery in adults, and had no difficulty in establishing the existence in these cases, both in the dejecta and in the pathologically altered intestine, of a microorganism, perfectly well defined, differing from the ordinary intestinal bacilli which we are familiar with, an organism which had only a short time before been described as the cause of an outbreak of dysentery in Japan by the man whose name it bears, Shiga. Now, Shiga introduced a modification of the method that led to his success and to the success of others in the same field, to which, I think, all our progress is due. He conceived the idea that if, among the host of organisms that can at all times be cultivated from the diseased intestine, the organism causing the pathological lesion were there, the chances were that it would produce such changes in the blood as to cause agglutination and thus show its relation to this pathological process. He observed that by means of the so-called Widal test it was possible to pick out of all organisms which might be isolated in cultures from the stools in typhoid fever that particular one which probably is the cause of the disease. He worked, as I stated, with an epidemic of dysentery—these epidemics of dysentery in Japan were common occurrences—and as a result he discovered that in all cases a single organism was picked out by means of this agglutination reaction. When he came to study the properties of this organism he found that it differed from all the ordinary bacilli. Then he found that it agreed perhaps best with typhoid bacilli. It differed somewhat from the typhoid bacillus in certain points; these permitted its detection and separation from that group of organisms. I think now that this bacillus of Shiga has come to be recognized as the cause of a definite group of cases of dysentery in adults. Since that time his observations have been confirmed by the Johns Hopkins Commission which was sent to the Philippine Islands, by Kruse, of Germany, and indeed in the last few years by bacteriologists and pathologists wherever these cases have occurred and wherever bacteriological science is pursued. There is, therefore, an unanimity of opinion among them that there is a definite bacterial form of dysentery which differs from amebic dysentery and which is marked out as a definite disease. It was with these results in mind that I thought it worth

while to turn to the study of diarrheal diseases in children, and I very early secured the cooperation of Dr. Knox, who was in charge of the Wilson Sanitarium near Baltimore, and of Mr. Bassett, and of Mr. Duvall, a bacteriologist who had had previous experience in the study of dysenteric diseases in this country, in which he had demonstrated the occurrence of the Shiga bacillus. It was possible to study at the Wilson Sanitarium something like 50 cases of the diarrheal diseases of infants. I cannot tell you anything, I regret to say, about the clinical data with reference to these cases; I am not a clinician and things which would appeal to me probably would be very gross and of little use to you in the types of the disease in which this organism was found. Of the cases which came to the sanitarium, about 52 cases were taken just as they presented themselves, without any selection whatever, and studied with reference to the occurrence of this organism, and it was found that in, I think, 45 of the 52 cases, perhaps a few more, the bacillus of Shiga was present. It was also found that not only was this bacillus of Shiga present, but that the blood serum of children who had this bacillus in the intestinal mucosa reacted with the organism in question, and often with organisms obtained from the dejecta of cases of dysentery in the adult, with organisms which I had obtained in the Philippines, and with those obtained by Kruse and others. It seemed, therefore, that this much could be stated: In a large proportion of the cases of summer diarrhea which came to the Wilson Sanitarium during the past summer, or at least during some weeks in the summer, which were examined bacteriologically, there could be obtained this microorganism, which is, I think, pretty well established as the cause of a definite type of adult dysentery. The cases in which the organism was obtained were cases in which blood and mucus appeared in the stools. That much I can tell you; what the other clinical facts are I really do not know.

We found that the organism is not easy to obtain on account of its similarity to other intestinal organisms from formed stools or from feces. Our success depended largely upon the condition of the stools. If blood also occurred along with the mucus in the stools, the organisms were obtained with even greater ease than when mucus occurred with an absence of blood. So an appearance of mucus and blood in the stools led us to feel that the organism would always be obtained. That is about the status of the studies so far as they were carried out last summer, and that

is the basis for the most part for any notion which may exist that the bacillus of Shiga is concerned with the causation of a group of cases of the summer diarrheas in infants. It was not possible to carry out these studies during the summer in other places. In Philadelphia we did not have good opportunities to study children in this way, but we did have a few cases. This is, however, no indication whatever of the number of cases which occurred there, but they represent all of the cases which we had access to.

There are one or two points of great practical interest which I should like to bring to your attention. I feel that those interested in the bacteriology of the diarrheal diseases of children should undertake to discover whether the disease as it will appear this summer is the same; I should like to know what your experiences will be. I should like to speak to you as one who has had his difficulties with the isolation of the bacillus of Shiga in order that you may not draw too hasty conclusions as to the presence or absence of this organism. In the first place, I think it is desirable that those who are intending to study the bacteriology of the intestinal flora of infants suffering with diarrheal diseases should take advantage of the opportunity to familiarize themselves with the bacillus of Shiga before the studies are begun. It is, in fact, a very easy organism to cultivate, and it does not offer any very great difficulties in learning its properties; but the real difficulty comes from the fact that the organism is not so very different from the colon bacillus and from the typhoid bacillus, as observed under ordinary conditions, so that one who is not familiar with it might easily be led astray in his work and in his conclusions. So it seems to me that any work that is contemplated should be preceded by a study of the organism itself. I shall be only too glad to send cultures of the organism to any one who has a desire to study it.

Now there is another point. The mere knowledge of the organism is by no means an assurance that you will be able to pick it out of the mixture of organisms which always occur in the intestines. There are tricks in the trade of bacteriology perhaps, as in all other trades, and the knowledge of the tricks will facilitate very greatly the accomplishment of the purpose that you have in view. The trick which helps one very much in picking out this organism is the following one. If you make cultures of the dysentery bacillus and close up the plates, at the end of twenty-four hours you will have abundant growths of the dysentery bacillus,

but if you mix colon bacillus and dysentery bacillus and, having sowed this mixture in plates, put these to develop in the thermostat, you will find that the dysentery bacilli, when mixed with the colon bacilli, are considerably restricted in their development. If, therefore, you transplant at the end of twenty-four hours, you will get almost no dysentery bacilli and almost all colon bacilli. The thing to do is not to transplant any colonies after twenty-four hours, because the colon bacillus is so far ahead in its growth of the dysentery bacillus; and if you wait for an additional twenty-four hours you will not be much helped, because you will only have more colonies to confuse you. The trick is to take a blue wax pencil and mark out on each plate in a blue streak the colonies present at the end of twenty-four hours, and make up your mind that you will have nothing to do with them. Put the plates in the thermostat and then regard every colony that has come out after the first twenty-four hours as suspicious. You can tell at once by the blue streaks which of the colonies came out in the first twenty-four hours.

Now it is in the second group that you will most likely find the dysentery bacilli. You will find in some cases that the number of dysentery bacilli which are obtainable far exceeds the number of colon bacilli which have come out in the twenty-four hours. We had one such case in Baltimore last summer. There was practically a pure growth at the end of forty-eight hours and the colon bacillus was practically absent during that period. Often under favorable conditions in which you have blood and mucus in the stools, you transplant and get many suspicious colonies, perhaps eighteen or twenty; but in some cases you may get only one, two or three colonies of the bacillus of Shiga and many other colonies, colon bacillus, etc. I think I can predict that many of you will fail to find the organism even when it is present.

Then there are one or two other points which I might mention to you. As a result of the studies of Shiga and of the commission which went to the Philippines, and of Kruse in Germany, it was concluded that there were certain variations in agglutination. The studies of Dr. Hiss in this country, independent of those which have been carried on since by Dr. Park in New York and Dr. Gay in Philadelphia, and others, have shown us that the dysentery bacillus does not represent a single type but that it has group characteristics. There are two well defined groups of organisms. The one when grown upon mannite will not make any change upon the

litmus. But the second type of the organism, which has all of the other cultural properties of the first, does produce a change in the litmus. They have certain relations, yet certain differences, so that each one retains in a way its certain individualities. We cannot say, if we admit that this organism is the cause of dysentery in infants, that one or the other type is especially concerned with the infection. We have found that the types occur somewhat irregularly, in an epidemic; we may find one type in one epidemic, another in another epidemic, that is in adult dysentery, and in some epidemics we may find both types of the bacilli occurring. All this indicates that the dysentery bacilli represent a group rather than a special or specific type of organism, just as we now recognize the colon group, etc., of organisms. It is of very great importance, both scientifically and otherwise, to have discovered these two types of organism, and it is furthermore important to know that these types vary. As we have stated, the particular type which has been obtained from cases of diarrheal diseases of children does not ferment with acid production on sugar, but both of them do on glucose and some on mannite. This year we have found one that agrees with the original Shiga type, but I do not think we have pursued this subject very carefully. These facts have come out since our study last summer, and it is very important that the investigations shall be taken up and carried out during the present summer. And I think it is safe to say that before the summer has gone we shall know, not only more about the diarrheal diseases, but also very much more about the types of the organism which are concerned in its production, whether it is one type or both types combined. Everything is left to the future, we have simply made a start. We have established the presence in these diarrheal diseases of an organism which previously had not been discovered in them. We have evidence of its pathogenic action. It is the future which must determine what position this organism must occupy with reference to the etiology of the summer diarrheas."

DR. W. H. PARK, of New York, spoke as follows:—

"My personal interest in the subject under discussion started with an experience last summer at Seal Harbor, Me., where Dr. Flexner and I happened to be visiting at a time when there was a slight epidemic of dysentery. At Dr. Flexner's suggestion Dr. Dunham and I looked for and found that the mannite fermenting

type of the dysentery bacillus was present. When I returned to New York, I found to my surprise that in towns along the Bronx River, just north of New York City, there had been about 500 cases of dysentery among a population of 30,000. The sick were mostly children, though some were adults. The patients had characteristic dysentery; pain, tenesmus, blood and mucus, some vomiting and other symptoms. The mortality was about 4 per cent. Both varieties of dysentery bacilli were present. Shortly after that a preliminary report of Dr. Flexner's assistants, Duval and Bassett, on the bacteriology of summer diarrheas came out. The conclusions arrived at by them clashed with my ideas and stimulated me to look further into the subject. There developed a few points which may be of interest. First, the agglutination test in dysentery is not going to be as easy to interpret as in typhoid. When an attack of summer diarrhea occurs in a previously healthy child, we can depend upon the serum reaction, but I found that a 1-10 reaction is very common in children having chronic intestinal diseases when no dysentery bacilli have been present. In adults where there is a chronic or subacute disturbance of the intestinal tract and no dysentery bacilli, we frequently find reactions between the serum and the mannite fermenting type of bacilli, in dilutions of 1-50 and even much higher. In the Bronx epidemic I found the children there giving strong reactions in convalescence. After three months the strength of the reactions diminished greatly, proving the agglutininism to have developed in the blood because of the dysentery. It averaged 1-30 at first and fell to below 1-10. There are other bacilli besides those belonging to the dysentery group whose injection into animals is followed by the development of agglutinating substances which clump the dysentery bacilli. I found in a number of cases of chronic dysentery in adults and in several children such bacilli, which in cultural characteristics were almost identical with the colon bacillus. These bacilli occurred more often in subacute and chronic cases than in acute cases. In New York City, where we had very little dysentery, children having diarrhea not accompanied by mucus and blood did not as a rule give a serum reaction with the dysentery bacilli, and I do not believe the dysentery bacilli were active in these cases. The results might be quite different in a town, or even in a city, where there happened to be a great deal of infection. It seems to me this must have been the case in Baltimore. From my own slight experience, therefore, and from the reports of others, I feel that the dysentery bacilli do not occur in the large proportion of cases

of summer diarrhea, and I should expect mucus and blood in most cases where the dysentery bacillus is an important factor."

DR. HENRY KOPLIK, of New York, continued the discussion:—

"I think that the subject of summer diarrhea is a very complex problem. Ever since the advent of modern bacteriology it has received extensive study. One among us, Dr. Booker, has made an international reputation in this field. In fact his studies on summer diarrhea will ever remain classical. He has met with microorganisms which, if they do not correspond exactly with what Dr. Flexner has described, certainly belong to the same group.

In considering the subject of summer diarrhea, we must first take into account that all practitioners who see any amount of summer diarrhea in children recognize certain broad definite classes of cases. In the first place, the great mass of illness in the summer time is found among artificially fed infants, and in that class we find a number of diarrheas which are the result primarily of the anatomical and physiological insufficiencies of the gut. We introduce into the baby's stomach a foreign element, that is cow's milk, and the gut is subjected to constant traumatism, as it were, from an anatomical and physiological standpoint. The first group of disturbances, which every one has met, is the dyspeptic group. This gradually then merges into other groups. If the milk is correctly modified or its administration suspended and something more digestible substituted, the digestive disturbances cease and the baby is practically convalescent. We must recognize this group because it is a very important one, and one that generally appears before other sets of symptoms belonging to the other groups of diarrhea make their advent. In other words, the dyspeptic attacks are due to an anatomical and physiological inability of the gut to cope with a foreign element, cow's milk. A great many of the severe summer diarrheas of infants are started in just this way.

The second group, I think, belongs to that class of diarrheas which are caused by the microorganisms in the food itself; that is, in the cow's milk, which, no matter in how cleanly a manner it is collected, carries with it a certain number of organisms which, if allowed to proliferate in this medium, will cause digestive or even inflammatory disturbances. This is a distinct class of cases, so distinct that its history reaches far back before the days of bacteriology. To this group would belong the cases described by Biedert, Escherich, and Booker due to the bacillus of butyric acid,

in which there are a very considerable number of very foul smelling, acid stools, also those due to the bacillus lactis aerogenes. These form a very large group of cases in our dispensaries and clinics and by far the largest group of cases of summer diarrhea. They are the cases due to the bacteria in the food itself, indigenous in the milk.

The third class of cases of summer diarrhea are the infectious cases. They are a distinct and independent class and have very little to do perhaps with the bacteria of the food itself. Some microorganisms, as Dr. Snow, has pointed out, have been introduced into the body from without. In this group belong the staphylococcus infections. Examining the dejecta of such babies, we have been struck by the peculiarities of the cases described as streptococcus infections by Booker and Escherich. The stools are peculiar; they have certain characteristics with certain clinical features.

Another set of cases belonging to this infectious group is the one which has been mentioned by Dr. Flexner, and this class has been the subject of investigation for the last four or five years. Ever since the discovery of Shiga, the pupils of Escherich and Escherich himself have been studying this set of diarrheas; the so-called bacillary diarrheas. The bacillary diarrheas occur for the most part in older children. They may occur in very young infants and they have been found to occur in institutions, or in certain localities. They are a distinctly limited class of diarrheas. How large this class is, future studies will show. Escherich and his pupils found in these diarrheas a bacillus which in its reactions exactly corresponds to the Shiga bacillus and which, according to Escherich, gave the agglutination reaction, as in Dr. Flexner's cases, but Escherich hesitated to say that the Shiga bacillus and this bacillus were exactly identical, or that his cases were true dysentery. Dr. Flexner in his remarks indicated why he himself had hesitated, because this is a class in which there are a number of bacilli which resemble each other closely. Dr. Park has shown you also that the agglutination reaction obtained in this class of cases is more or less uncertain. In my own service I had a number of cases last summer, and we have been trying to obtain some definite results in the etiology and bacteriology. In none of our cases could we be absolutely sure that we obtained the bacillus described by Escherich and his pupils and Flexner and his pupils. I do not say that Flexner's bacillus and Escherich's bacillus are identical, but they do certainly belong to the Shiga group. We

are not ready to assume that this set of summer diarrheas belong to the dysenteries.

I have tried to mark out how complex this whole subject is. There is another point which I wish to dwell upon. I do not know that I stand apart from the rest of the pathologists and bacteriologists when I say that in some cases of diarrhea these bacteria combine to form a complex etiology; that is, diarrhea in a baby may be due to several causes. It is not always that you find the streptococcus or the staphylococcus the actual cause, pure and simple. As to this particular Shiga group I would hesitate to say at present how great the class is. I am inclined to think with Dr. Park and with Dr. Escherich that the group is a limited one. That it does not include all the forms that we see in large cities, that it does not take in the forms which I think are gradually being controlled by our modern methods of infant feeding among the poor from distributing stations, which give these little patients clean milk. I have received children under my care who I am sure would have died in the days preceding the agitation on sterilized milk. We have saved them, and they belong to the second class of cases in which the bacteria, indigenous in the milk itself, had been allowed to grow and get the upper hand. These bacteria were introduced into the intestinal canal of the infant with the decomposed milk and caused trouble.

The clinical and bacteriological study of summer diarrhea should go hand in hand."

DR. L. EMMETT HOLT, of New York, continued the discussion, saying:—

"During the past season, from October till May, considerable work has been done in the Babies' Hospital upon the Shiga bacillus and the diseases in which it has been found. In the laboratory of the hospital, Dr. Wollstein has studied bacteriologically the stools from 112 children, in most of the cases a number of examinations being made. These cases were taken at random and included all kinds of intestinal disturbance. The Shiga bacillus was found in 37 cases. These 37 all had symptoms of colitis and most of them were acute, usually beginning with fever which frequently was as high as 103° F. The stools showed much mucus and often they contained blood. In no case where both blood and mucus were present was the organism absent, although it was not found in all the cases where the stools contained mucus, even though the quantity of mucus was considerable. Ten of these cases occurred at the Babies' Hospital, three at the Nursery

and Child's Hospital, twenty-four at the New York Foundling Hospital. Rarely were isolated cases seen, in nearly every instance several occurred together in a ward.

Characteristic blood reactions were obtained in all the cases. These were irregular in their appearance during the first week, although they were obtained in one case on the second and in another on the third day of the attack. During the second week most of the cases gave positive results. The reactions were present in one when it was discharged from the hospital, twenty-seven days after the attack. Ten newly-born and ten healthy children were examined, and in no one was the blood reaction obtained with the Shiga serum. The bacilli persisted in the stools for a considerable time after the attacks; in 1 case they were found six weeks and another four weeks after.

Fifteen autopsies upon cases of Shiga colitis have been studied by Dr. John Howland. There were no characteristic anatomical changes which accompanied this form of infection. Nearly all varieties of inflammation were met with except the croupous form, which was not seen in any of the cases. In the 6 acute cases there was an intense congestion of the mucous membrane, with areas of necrosis more or less extensive. In the 5 subacute cases there was follicular ulceration which was usually superficial. In 2 cases of terminal infection only a slight congestion of the mucous membrane was present.

Flexner's anti-dysenteric serum was used in 8 cases. In 3 of these very striking improvement appeared to follow its administration. Two children were practically moribund when it was given; in 3 others no effect was seen.

The number of cases of course is too small to admit of any deductions. The conditions in the intestines are so complicated, it is doubtful whether we shall see the striking benefit following the use of diphtheria antitoxin. The close relationship between a certain type of inflammation of the colon, viz., that with blood and mucus in the stools, seemed clearly established by these investigations."

DR. J. H. M. KNOX, of Baltimore, spoke as follows:—

"I am exceedingly interested, as we all are, in this discussion, and I have learned a great deal. I had charge last summer of the Thomas Wilson Sanitarium and a word or two about the clinical records of the cases referred to by Dr. Flexner may be of interest.

The Thomas Wilson Sanitarium is about ten miles from Bal-

timore, and on that account it was difficult to obtain the children very early in the disease. This is a difficulty which Dr. Booker and others have always had in that institution; the children are usually sent to us pretty sick after they have been treated, for some days at least, in the city. Of the cases in which the organism was isolated, at least ten presented the acute symptoms recognized as those of fermentative or dyspeptic diarrhea. They had a history of an acute onset with fever, vomiting and diarrhea. The stools were first semi-fluid, then fluid; and finally, having lost their fecal character, became mucoid, the mucus being infrequently tinged with blood. In these cases, however, the blood was not excessive, only an occasional fleck in with the mucus; and in several of these instances, two or three at least, we found no blood at all, and the organism was recovered from the portions of the stool which were either clear or greenish mucus. A large number of these 42 cases I think belong to either the subacute or chronic type, in which the child came under our observation late in the disease, and the stools contained a great many leukocytes and more blood. There were only a few cases, however, in which the blood was excessive.

I would not assert that all of our cases, more than three hundred in number, of the so-called summer diarrhea were caused by this organism, but so far as could be told there was nothing either in the clinical history, the character of the stools, or the pathological condition at autopsy, to enable one to differentiate our cases from those recognized as typical epidemic summer diarrhea. I should like to corroborate what Dr. Holt has said in reference to the pathology of this condition. In several instances there were no gross lesions at all; the intestine was covered with an excess of mucus. There was no ulceration whatever, but quite a marked enlargement of the mesenteric lymph nodes, and a pale and rather thinned out condition of the mucosa. In other instances we found definite ulceration beginning, as he has said, with small ulcers on the solitary follicles. In none of the cases last summer did we find extensive ulceration, but the cases were clinically like those of the preceding summer, in some of which we found very extensive ulceration associated with marked thickening of the whole wall of the large intestine. I think it is important to emphasize the fact that the cases which were sent to the sanitarium came from all sections of the city, that is, they formed a part of the usual epidemic of diarrheal disorders annually re-

current in large cities during the warm months. Furthermore, we had blood sent to us from other cities from babies similarly affected, and it agglutinated the organisms isolated from our cases. In several cases seen outside the sanitarium, either the organism was obtained from the stool, or the blood agglutinated the Shiga bacillus.

I feel, therefore, that while it is necessary to have this work confirmed, we can at least be hopeful that a fairly large group, both of the acute and chronic cases of summer diarrhea will be found to be due to this organism."

DR. BOOKER, of Baltimore, then spoke, as follows:—

"It has been so long since I have worked in the laboratory that I have almost forgotten my own work, and feel somewhat embarrassed in returning to the subject. I cannot speak from personal experience in regard to the bacillus separated by Duvall and Bassett from the diarrheal feces of infants last summer. There are many points to be considered and problems worked out before the relation between this bacillus and the summer diarrheas of infants can be determined. Whatever the relation may prove to be, the separation of the bacillus from the colon group, and the careful study which has been made of it by these two young men, is of great scientific interest, and may be regarded as one of the most important and satisfactory works that has been done in bacteriology in this country.

When I left the laboratory study of the summer diarrheas of infants I had come to the conclusion that it was a very complex subject, comprising a number of affections, in which most of the organs of the body are often implicated, and in which many different varieties of bacteria are concerned, the most important of which belong to the streptococcus group.

I have isolated between thirty and forty varieties of bacteria from the intestinal contents of infants affected with different forms of summer diarrhea, and at the first meeting of this Society, in 1889, I described among other bacteria, the separation of seven varieties of the colon group. From the morphology, cultural resemblances, and especially the milk reaction, the variety which I described as bacillus M appears identical with the bacillus of Duvall and Bassett. At the following meeting of the Society, in 1890, I reported a case of ulcerative catarrhal dysentery in which special attention was called to a bacillus found in large quantity

in the diseased colon, which closely resembled the colon bacillus, but differed from it in not coagulating milk or reducing litmus.

Owing to the large number of varieties of bacteria upon which I was at work, and the limited means at my disposal for animal experimentation, the pathogenic properties of only a few of them could be tested. Some of these which were found in large quantities in the intestinal contents proved strongly pathogenic to lower animals. Other workers in this field have similarly found a number of varieties of bacteria, possessing pathogenic properties, in large numbers in the diarrheal feces of children. These considerations together with the manifold variety in the clinical features and anatomical changes in summer diarrheas speak against a specific excitator for these affections.

The Shiga bacillus is said to have been found by Duvall and Bassett chiefly in cases having mucus and blood in the stools. This does not give us much information as to the condition of the intestine. It is important to distinguish between clear mucus and muco-pus, and pure blood and blood mixed with pus in the stools. Pus is the ingredient in the stools which indicates ulceration of the intestine. Mucus is secreted and poured into the intestinal canal in large quantity. Under normal conditions so much of this is reabsorbed that only an imperceptible quantity passes out with the feces. When mucus appears in the stools in clear lumps it may be the result of very slight abnormality in the intestine, without any pathological lesions whatever. It is when mucus is clouded by leukocytes that it represents a serious condition of the intestine. So with blood in the stools. When pure, even in considerable amount, it may not signify a serious condition of the intestine. It is when blood is persistent, and especially when mixed with pus that it should cause apprehension.

The only case that came under my observation last summer in which examination was made for the Shiga bacillus belonged more to the cholera infantum type than the dysenteric. The child had been sick only a few days, and had not lost much flesh. It was slightly toxic, and had frequent watery stools, with very offensive, putrid odor, and without mucus or blood. From the condition of the child and nature of the stools, I felt confident that cultures would show large numbers of proteus vulgaris. Contents from the rectum were taken with a glass tube and delivered to Mr. Duvall within a few hours. He reported the cultures as almost pure of the Shiga bacillus and containing no proteus bacilli.

Two injections of Flexner's serum were given to the child. A very slight improvement was noticed after the first injection, but a more decided change for the worse followed the second injection, and the child died a few days later.

As to the serum treatment of the summer diarrheas, we should not be too sanguine in our hopes. Even if the Shiga bacillus should prove to be the important exciting factor of these affections, as has been so confidently claimed for it, we cannot exclude the participation of other bacteria in the disease. It is also well to remember that we often have serious pathological lesions, deep and extensive ulcerations of the intestine, and more or less important changes in other organs of the body to deal with. Care should be used in estimating the effect of serum upon the disease. In no other disease does recovery so often happen from apparently hopeless conditions, and under most diverse methods of treatment. Seven years ago I used Marmorek's streptococcus serum in a number of cases of streptococcus enteritis. Decided improvement followed the use of the serum in every case except one, but it was only temporary and all of the cases died. In 1 case in which streptococci were the predominating micro-organism in the stools, the improvement after injection of the serum was startling. The child was twenty-one months old, and had been sick with enteritis four or five weeks. It was in a state of coma with small, feeble pulse, which could scarcely be felt, and had cyanosis over much of the body; 10 c.c. of Marmorek's serum was injected under the skin about 10 A.M. In the afternoon the child had regained consciousness, had a fair pulse, the cyanosis had completely disappeared, and the child was able to take the bottle. The improvement was of short duration, and the child died in spite of repeated doses of serum.

In the use of Flexner's serum, I think, if we get results from it, it will be when used in the early stage of the disease, before serious anatomical changes have occurred, and other organisms are brought into participation. It has been suggested that the rôle of the Shiga bacillus is to render the conditions in the intestine more suitable for the activity of other bacteria. If this should prove true, it is still more important to use the serum in the early stage of the disease."

DR. FLEXNER closed the discussion:—

"I wish to thank the members of the Society for the very full way in which they have discussed this condition. I have been

myself very much helped by the facts and the views which they have stated. I quite agree with the gentlemen who dwelt upon the complexity of the problem, for it is by no means easy. I thought I had made myself clear that I am not committed to any view of the causes of summer diarrheas, excepting that this organism occurred in some of them. It remains for the future to determine just what the limits of this occurrence are, what the importance of this occurrence may be, and how the pathology and bacteriology may be brought into harmony. I do not think that one can speak positively upon that subject now. I think the autopsy records add very greatly to our knowledge of the character of the lesions associated with this disease. Our experience at the Wilson Sanitarium was so limited that it hardly seems worth speaking of; but with the reports now of fifteen autopsies we see something of its possibilities.

There are two points which I should like to touch upon briefly. The first is that I am convinced that whatever the Shiga bacillus does, it does early. We have to deal with mixed infections, and how much of this complex mixture is a condition of an early infection is a very important question. How much damage the streptococcus and staphylococcus, which are constantly present, can add to the effects of the other bacilli, I think, is a point that should be kept in mind. The serum is, of course, experimental. It must be remembered at the outset that this serum attempts to deal not with a disease, the effects of which are due to a poisoning, as is the case with diphtheria; hence it is not a serum which acts as a therapeutic agent alone. What we have to deal with in this disease is an organism, and our serum must be able to attack the bacteria themselves and bring about their destruction. We have a recent communication from Kruse, who has used the serum in adults in Germany, with excellent effects, he thinks. What this serum will do in the cases of children is a matter to be settled by experience. But its good effects are likely to be gotten if it is used early. Of course, in dealing with a large number of cases, many of them would have gotten well without it, but if you wait until the symptoms are more severe, the outcome is doubtful. As Dr. Booker said, the serum for hopeful therapeutic effect should be given early. The serum as tested on animals is very effective. It rescued guinea pigs from infection almost without exception. I think it is at least worth trial, but whether it is to be used or not is to be decided by bacteriologists and clinicians."

PNEUMOTHORAX IN CHILDREN.

BY DAVID BOVAIRD, JR., M.D.,

New York.

The rarity of pneumothorax among children is a matter of common experience, and is evidenced in the fact that most of the text-books on the diseases of childhood devote no attention to the affection. Neither Baginsky, Holt, nor Rotch mention it. In Starr's "Text-book of the Diseases of Children," Pepper speaks of it as a rare complication of bronchopneumonia. Comby in the last edition of his "*Traité des Maladies de l'Enfance*" devotes a brief chapter to it. As he has from time to time during recent years met with pneumothorax in autopsies on children, and during the past summer has had opportunity to observe 2 cases clinically, the writer has been led to believe that his observations would be of interest to others, especially as it is evident that the etiology of the affection in childhood differs somewhat from its etiology in adult life.

We may recall that in adult life 90 per cent. of the cases of pneumothorax are due to the rupture of a tuberculous focus in the lung. The remaining 10 per cent. are produced in various ways, the rupture of pleural empyemata into the lung or of abscesses of the lung into the pleura, of bronchiectatic cavities, of emphysematous areas, rupture of the lung by traumatism or by the violent cough of pertussis, penetrating wounds of the pleura, etc.

CASE I.—Angela Quinlan, aged four years and seven months.

December 9th. Suddenly taken sick. Coryza, watery eyes, Koplik spots, cough, mottled rash on the forehead.

December 10th. Rash over whole body.

December 11th. Rash very profuse. Koplik spots present. Catarrhal symptoms marked.

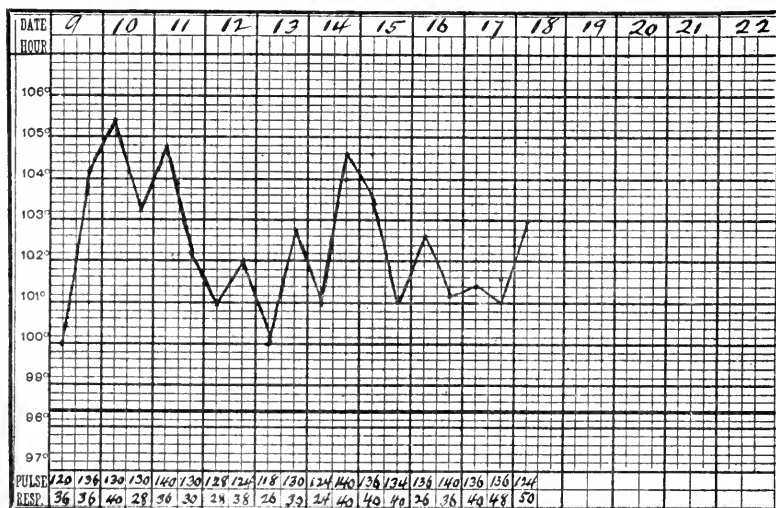
December 14th. Rash hemorrhagic on thighs and arms. There are a few sibilant râles over the chest.

December 16th. There is bronchial breathing over a circular area, two inches in diameter, below the right nipple. Subcrepitant râles over both lungs, posteriorly, with some diminution of breath sounds at the right base. In the afternoon the area of bronchial breathing was twice as large as before.

December 18th. Child had a sudden sinking spell, became cyanosed and almost pulseless, and gasped for air. Stimulation

was freely administered and she revived somewhat. The right chest was found to be tympanitic to percussion, but the child was too sick to warrant further examination. She died shortly afterward.

At autopsy the right pleura was found to contain about an ounce of pus and to be coated with fibrin. The right lung was collapsed and compressed upward and backward. It was consolidated throughout, on section the surface was mottled a dull red and gray, the pleural surface was rough and coated with fibrin. In the lower lobe there was a softened area on the pleural surface.



TEMPERATURE CHART OF CASE I.
MEASLES, BRONCHOPNEUMONIA, PNEUMOTHORAX.

On section a cavity full of thick, yellow-green pus was opened. There were a number of such cavities in the lower lobe, varying from 5 to 15 mm. in diameter, all full of pus and evidently bronchiectatic.

CASE II.—George Eyles,* aged three years and twenty-seven days.

July 1st. The boy comes under observation for a temperature. He has been mentally dull, but there is no history of previous illness. He is well-nourished, and, except for the presence of Koplik spots, the physical examination is negative.

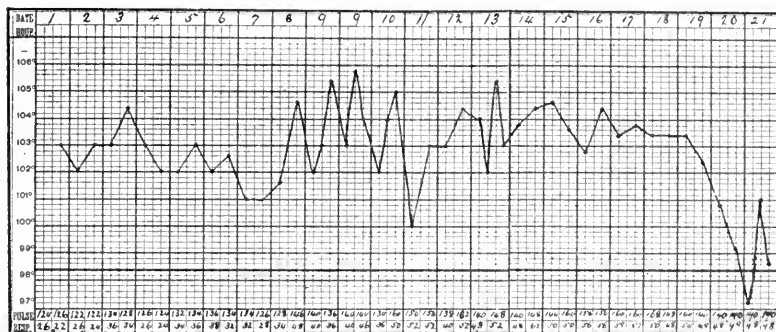
* The clinical data of this case are supplied by the courtesy of Dr. J. J. Reid, attending physician to the New York Foundling Hospital.

July 2d. A measles rash has appeared on the face. The eyes are not very red and there is no coryza.

July 4th. The rash has become general. The eyes are very red.

July 5th. The boy is delirious and stupid. The mouth is foul. The respiration is slow.

July 6th. The mental condition is improved. There are numerous râles over both lungs. The apex beat is pushed to the right. The respiratory sounds are diminished. The heart sounds are faint and rapid. The rash is not all faded, the skin is yellow. The patient is coughing. The bowels are loose and the movements contain mucus.



TEMPERATURE CHART OF CASE II.
MEASLES, BRONCHOPNEUMONIA, PNEUMOTHORAX.

July 7th. A general improvement is noted and the child sits up in bed.

July 9th. The boy seems very dull. The bowels continue loose, with green mucous movements.

July 11th. The bowels remain the same. There are râles all over both chests, with diminished voice and breathing.

July 12th. The bowels remain the same. There are many râles at the right base, the cough is severe.

July 13th. The boy seems better; the bowels are improved. Over the left chest the percussion note is tympanitic, the voice and breathing are diminished.

July 14th. An aspirating needle is inserted into the left chest and no fluid obtained.

July 15th. There is tympanitic percussion all over the left

chest, with loss of the respiratory and voice sounds. The apex beat cannot be felt and the heart sounds are very faint. Over the right chest in front there is dullness at the apex, with exaggerated breathing and many râles.

July 16th. Condition practically the same.

July 18th. Over the left chest the percussion note is still tympanitic except for a small area of dullness in the interscapular region at the level of the fifth vertebra. Neither breathing nor voice sounds can be heard. An aspirating needle inserted and nothing but air obtained. There is a pulsation in the epigastrium. The usual cardiac area is very tympanitic to percussion. There is an area of dullness to the right of the lower part of the sternum, corresponding to the normal cardiac area on the left side. The cardiac impulse is obtained just inside the right nipple. Over the right chest there are the signs of an extensive bronchopneumonia. There is a subcutaneous emphysema extending from the site of a puncture in the left chest (anteriorly) to the pubes.

July 19th. The signs of the bronchopneumonia on the right side are more extensive. The dyspnea is more marked.

July 20th. The physical signs are the same. On account of the dyspnea an attempt to aspirate the air from the left chest is made. After the aspiration a respiratory murmur can be heard. The percussion note is less tympanitic. The dyspnea is not relieved. The patient is in collapse and there is marked cyanosis. Chest measures one-half inch more on the left, as before the aspiration. The liver and spleen are both palpable.

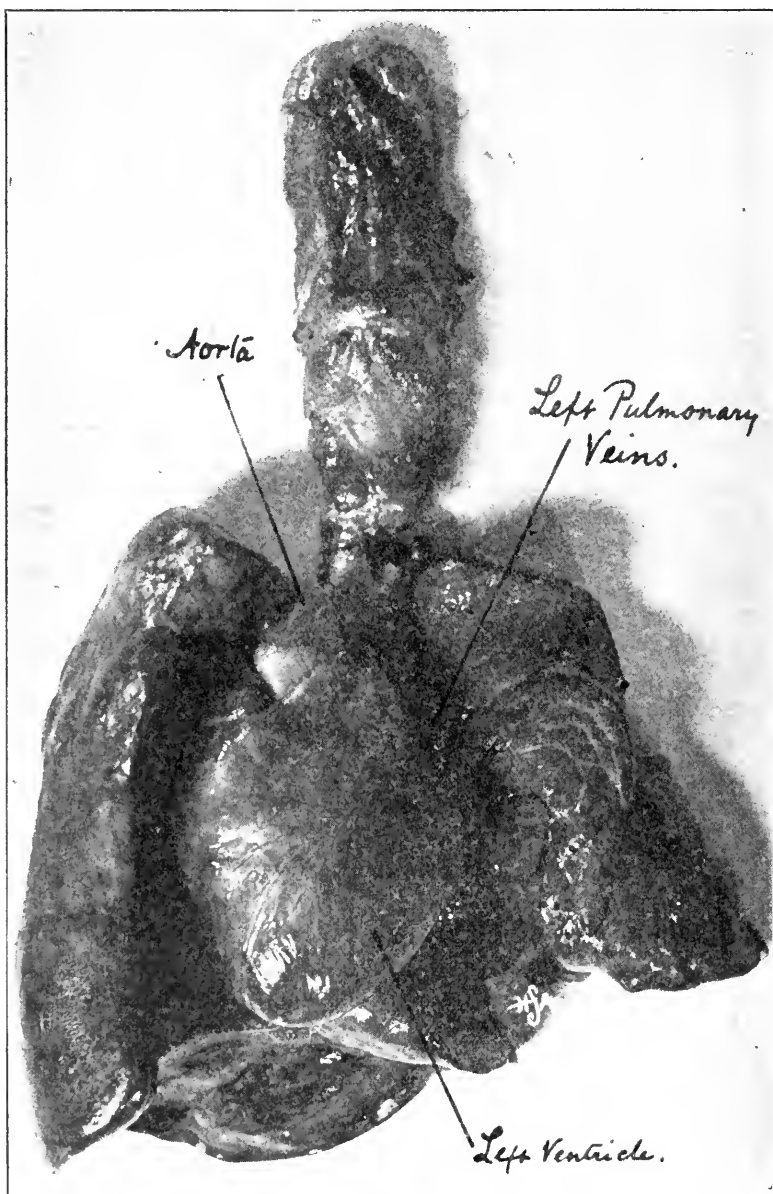
Fourteen hours after the aspiration the emphysema became much more extensive, spreading to the back and upward into the neck, and down the arms even to the wrists. In the suprasternal notch it increased to such an extent as to form a tumor like a goitre. There seems to be no pain or discomfort except from the corresponding to the area of dullness that had been noted between urgent dyspnea. The patient lies always on the right side, never on the left.

July 21st. Death occurs without material change in the symptoms.

The important parts of the autopsy record follow. There was a subcutaneous emphysema covering the neck, the whole trunk to the pelvis, and the upper extremities to the wrists. There was a left pneumothorax, with very remarkable displacement of the viscera. The diaphragm was pushed down so as to destroy the

appearance of an arch. The lung was compressed upward and backward, till it formed only a small mass at the root of the lung, corresponding to the area of dullness that had been noted between the scapulæ during life. The heart was displaced entirely to the right of the median line, but also presented a very notable rotation from left to right upon the great vessels as a pivot, so that the left ventricle was the part showing anteriorly. Furthermore, by this rotation, the right auricle had been compressed against the root of the right lung to such a degree that it seemed it could hardly have contained any blood, and its action must have been greatly impaired. The compression of the lung, the displacement and rotation of the heart are well shown in the photograph. The lung appears less compressed than it was in the natural state, as it had been inflated to demonstrate the site of the rupture. This was found in the middle of the posterior aspect of the lower lobe. About the track of the rupture there was a small area of reddish infiltration, which, upon section, oozed blood. The right lung showed an extensive consolidation, having the usual appearances of bronchopneumonia. The microscopic examination confirmed the gross appearances. The small area about the track of the rupture was found to show the lesions of bronchopneumonia, as well as the process in the right lung.

CASE III.—Freddie Harre, aged five years, was admitted to the Presbyterian Hospital, May 22, 1903. His previous history was entirely negative except for measles, which he had had one year ago. The illness for which he was admitted began ten days before admission with the symptoms of a pneumonia. On admission the temperature was 104.4° , the pulse 132, the respiration 80. The physical signs being those of fluid, the left chest was aspirated and a small quantity of reddish serum was withdrawn. After this the consolidation gave the usual signs. On May 25th, with signs of resolution of the left lung, evidences of consolidation of the right lower lobe were found. On June 5th the right upper lobe became involved and the child's condition was very grave. On June 9th he spat up 3 drams of bright red blood, the only expectoration during the illness. The following day he defervesced, but the signs of consolidation of the right upper lobe persisted and there were râles over both lower lobes behind, and some dullness at the left base. The heart had been normal all this time. The child's condition at this time was still critical, although the temperature had fallen and remained low. The respiration was still very rapid. On May 14th it was found that in the left axilla, from the pos-



PHOTOGRAPH OF LUNGS AND HEART IN CASE OF PNEUMOTHORAX, SHOWING COLLAPSE OF LEFT LUNG, DISPLACEMENT AND ROTATION OF THE HEART.

(Photograph by Dr. H. S. Arnold, of the Presbyterian Hospital, New York City.)

terior axillary line forward to the nipple, there was a marked tympanitic resonance with amphoric voice and breathing and a good coin test. The heart was displaced markedly to the right, the apex being just internal to the right nipple. These signs persisted and on May 20th an aspirating needle was used to explore the tympanitic area. The needle entered a cavity from which nothing but air could be withdrawn. This, taken with the physical signs, was considered evidence of the existence of a pneumothorax. From this time on the child's general condition improved, the signs in the chest gradually cleared up, and the heart slowly resumed the normal position. In the latter part of July the boy left the hospital in excellent condition. At the time of the hemoptysis it was thought that he surely had tuberculosis, especially as the pulmonary consolidation persisted so long and the boy had become greatly emaciated. We were unable to obtain a specimen of sputum for examination. The subsequent rapid improvement led us to abandon the thought of tuberculosis, although the possibility that the affection was tuberculous must still be admitted. The presence of tuberculosis would render easier the explanation of the pneumothorax, as it must otherwise be admitted as a complication of simple lobar pneumonia, an association of which we have no other knowledge. Probably the condition, that is the pneumothorax, was produced by the rupture of an emphysematous vesicle, produced by the repeated hard coughing. Emphysema of the anterior portions of the lungs is, as is well known, a very common finding in children with extensive pneumonic processes in the other parts of the lungs.

On examination of the autopsy records of the New York Foundling Hospital I have found the data of 2 other cases of pneumothorax of which I could not obtain the clinical histories. One of these was a six months old child. There was a suppurative epiphysitis of the upper end of the left tibia. The lungs showed scattered areas of pneumonia throughout. In the left upper lobe there was anteriorly a thin-walled cavity which had ruptured through the pleura; the surrounding area of the lung was consolidated. The lung was compressed by the air in the pleural cavity.

The second case was a boy of only four months. In this case there was an ounce and a half of thin muddy fluid in the right pleural sac, the right lung was compressed and carneous. In its lower lobe there were two small, honey-combed abscess cavities,

each about 1 cm. in diameter, one of these near the anterior inferior edge had ruptured through the pleura.

Summarizing these cases we have 2 cases of pneumothorax produced by the rupture of areas of bronchopneumonic consolidation occurring as complications of measles; 2 cases produced by the rupture of small abscesses of the lung, the clinical history of which is not known, and a fifth case which was probably due to the rupture of an emphysematous vesicle. As the latter case was only partial and the patient recovered, the etiology could not be exactly determined.

LITERATURE.—A search of the literature of the last ten years reveals hardly a mention of the subject of pneumothorax in children. The only considerable contribution to the subject is to be found in A. Steffen's "Zur Pathologischen Anatomie des Kindlichen Alters," 1901.

Steffen describes 2 cases in which the pneumothorax developed as a complication of diphtheria, in one from the rupture of an emphysematous vesicle, in the other from the softening of an infarct. He also observed it as a complication of measles from the rupture of a small abscess in the lung, in a case of miliary tuberculosis and whooping-cough, in a case of miliary tuberculosis and emphysema, and, finally, as the result of trauma.

Seiffert records a case in which the pneumothorax developed in a child suffering from pulmonary tuberculosis with cavities in the lung. Seiffert also reports a case due to the rupture of an empyema into a bronchus.

Malinowski reports the occurrence of pneumothorax in a child during a paroxysm of whooping-cough excited by having fallen under a passing wagon!

Von Gelmo also observed the affection in the course of whooping-cough accompanied with a subcutaneous emphysema involving the face, trunk, and the upper extremities, even to the finger-tips.

Cnopf reports a case in which the pneumothorax was of both sides, and a second unilateral case, both following tracheotomy for diphtheritic laryngeal stenosis.

W. L. Carr has reported a case complicating pneumonia and pleurisy.

It is of interest to note that in both the cases in which Steffen found miliary tuberculosis, in association with the pneumothorax, he attributes the latter to the rupture of emphysematous vesicles which were present and not to the rupture of tuberculous nodules.

TABLE OF CASES OF PNEUMOTHORAX.

	Reporter.	Reference.	Sex.	Age.	Side.	Primary Disease.	Termination
1.	Seifert.	<i>Jahrb. für Kinderheilk.</i> , 1881, p. 404.	M.	4 years.	R.	Miliary Tuberculosis.	Death.
2.	"	"	M.	8 "	L.	Empyema.	"
3.	Steffen.	<i>Zur Path. Anal. des Kind.</i> , Alters, 1901.	F.	7 "	R.	Measles, Bronchopn.	"
4.	"	"	M.	5 "	R.	Diphtheria Infarct of lung.	"
5.	"	"	M.	1 "	R.	Empysema.	"
6.	"	"	M.	7 "	L.	Pertussis, Emphysema and Tuberculosis.	"
7.	"	"	F.	3 "	L.	Tuberculosis and Emphysema.	"
8.	"	"	M.	12 "	L.	Trauma.	"
9.	Malinowski.	<i>Jahrb. für Kinderheilk.</i> , 1885, p. 273.	F.	4 "	L.	Pertussis.	Recovery.
10.	Von Gelmo.	<i>Ebendort.</i> Vol. IV, p. 135.	M.	4 "	L.	"	Death.
11.	Cnopf.	<i>Munch. Med. Wochenschr.</i> , Nov. 7, 1893.	M.	2 "	Both	Diphtheria, Tracheotomy.	Recovery.
12.	"	"	M.	2 "	L.	"	"
13.	The Writer.	"	M.	3 "	L.	Measles, Pneumonia.	"
14.	"	"	M.	3 "	L.	Pneumonia.	"
15.	"	"	F.	5 "	R.	Measles, Pneumonia.	Recovery.
16.	"	"	M.	3 "	L.	Bronchopneumonia.	Death.
17.	"	"	M.	6 mos.	R.	Abscess of the lung.	"
18.	W. L. Carr.	<i>Transactions of the American Pediatric Society.</i> Vol. VII.	M.	4 "	R.	Pneumonia, Pleurisy.	Recovery.

Of the cases here recorded the traumatic case of Steffen, von Gelmo's and Carr's cases, and one of the writer's recovered; all the others appear to have been fatal. From the limited number of cases before us it would appear that pneumothorax in children is most liable to occur in the diseases which are characterized by their tendency to bronchitis, bronchiectasis, and bronchopneumonia; namely: measles, diphtheria, and whooping-cough. It occurs also in association with tuberculosis of the lungs, but apparently not with the frequency that West has noted to prevail in adult life.

As only 4 of the 18 cases, collected, recovered, pneumothorax in childhood must be considered a very grave complication. Experience is too limited to attempt to formulate any rules for the treatment of the affection, but the extensive displacement noted in one of the writer's cases, and the evidences found of resulting interference with the function of the heart, suggest the advisability of withdrawing the air from the pleura; or, in the event of the failure of this procedure, making a free incision into the pleura.

The Treatment of Typhoid Fever with Benzoyl-Acetyl Peroxid or Acetozone.—Frederick G. Harris, of Chicago (*Therapeutic Gazette*, March, 1903) reports 128 cases of typhoid treated in Cook County Hospital, Chicago, with acetozone. The cases first admitted seemed to indicate that the epidemic was of a mild form, but later the disease proved to be of a severe type and complications were numerous. The author obtained the most satisfactory results with aqueous solutions of fifteen grains to the quart which the patients were urged to use very freely to quench the thirst, while in addition four to six fluid ounces of the solution were given every four hours as a therapeutic measure. The movements of the bowels were regulated with sodium phosphate or magnesium sulphate.

The temperatures of the patients, on admission, were high, as a rule. In 117 cases under acetozone treatment the average duration of the fever was eighteen days.

The number of recoveries was 117, or 91.4 per cent., while eleven patients died, a mortality of 8.59 per cent.; statistics of the cases of typhoid fever in the same hospital (Cook County), not treated with acetozone show a death rate of 13.1 per cent. The author is of the opinion that under the acetozone treatment, in favorable cases, the duration of the disease was materially shortened, and the most disagreeable symptoms were ameliorated.

CHOREA; WHAT IS IT?*

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To answer the questions propounded in this interrogatory title should require a discussion of:—(1) Origin and fitness of the term chorea. (2) Classification. (3) Clinical picture. (4) Diagnosis. (5) Pathological Anatomy. (6) Pathogenesis.

Chorea is a term derived from the Greek meaning dance. Paracelsus first applied it to an epidemic disorder of movement which developed in children and adults in Germany and the Netherlands during the fourteenth, fifteenth and sixteenth centuries. For relief of the mysterious disorder people sought the shrines of favorite patron saints. The chapel of St. Vitus in Zabren acquired such a reputation for cures that the Strasburg magistrates ordered the sufferers to be sent to this chapel to be healed by the saint. This affection which was evidently an hysteria or imitation psychosis was also described by other writers and cures ascribed to various shrines, hence the names St. John's and St. Anthony's dance. The disorder was remarked by many authorities and indeed was so extensive as to be referred to as the "procession of jumping saints." The origin of the malady was undoubtedly in an ultra-religious enthusiasm. In our own country in the states of Kentucky and Tennessee at the beginning of the past century, and as the result of religious enthusiasm, it is said that a real *Chorea Sancti Viti* appeared.

Hecker, in his work which is still the standard authority upon the epidemics of the middle ages, made a special study of the dancing psychoses and discussed them under three heads. With our present knowledge we are able to properly place all of his cases under well recognized subdivisions of the various neuroses, or psychoses, and positively differentiate them from chorea.

It is peculiarly unfortunate that the word chorea should have been used by the great Sydenham to designate the rather common disorder which he was the first to carefully observe and adequately describe, and to which, in the following centuries of usage,

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it has inseparably attached itself. Notwithstanding the unfortunate misuse of the word by Sydenham there can now be no valid reason for abandoning it, especially since the epidemic forms of so-called "hysterical chorea," or the "dancing manias" have disappeared. The persistent misuse of this word for centuries in the description of a clinical type, the pathological origin of which is still very obscure, has many parallels in medicine, of which tabes is classical. In the latter instance it is to be observed that while our pathological anatomy is exact and extensive, the pathogeny is largely speculative. Tabes, meaning wasting of the back, commits us to no pathologic doctrine nor to the equivocal dependence upon a prominent symptom which in atypical cases may be wanting. Progressive locomotor ataxia is not a good term for not only is the affection oftentimes not progressive but ataxia may not be present; and in the use of the term chorea we commit ourselves to no pathologic doctrine; but, unfortunately, do commit ourselves to a symptom—dancing—which is rarely or never present.

Paralytic chorea, paralytic dancing, limp chorea, limp dancing. It is both ludicrous and amusing and I can imagine no reason for the long continuation of this example of philological sinning than a worthy desire to err in the company of the original nosological sinner, but wonderfully great Sydenham.

It does seem strange, however, that chorea should be made the nosological hook upon which authors and observers have indiscriminately hung all sorts of affections which are characterized by coarse, incoordinate trembling and irregular purposeless movements. Apparently it has been necessary only for some enthusiastic medical observer to remark a patient with incoordinate muscular movement appearing in any part of the body, to immediately burden medical literature with a new nosological monstrosity like *chorea scriptorum*, dancing writers' cramp. Think of it! Shade of Paracelsus! Indeed we find in one of the popular medical dictionaries ninety-four separate affections described as subdivisions of chorea. This perpetuation of an error causes one to slyly suspect that both ancient and modern physicians were better clinicians than philologists.

To facilitate discussion and study of chorea, Osler has proposed the following four grand divisions:—

"Chorea Minor—Sydenham's chorea—an acute disease of childhood, rarely of adults and of the aged, characterized by ir-

regular involuntary movements, a variable amount of psychical disturbance, and associated very often with arthritis and endocarditis. The disease is usually regarded as a neurosis, but the clinical characters of the severer cases, and the frequent heart and joint implications have suggested to many recent writers that it may be due to a specific poison."

"Chorea Major—under which term are now embraced both dancing mania and the various forms of rhythmical or hysterical disorders of motion. Psychical impressions, emotional disturbances, and imitation, play the most important rôle in this form."

"Choreiform Affections or Pseudochoreas—the various forms of habit spasm or tic, local or generalized, which are perhaps best grouped under the latter term, in the more extended use as employed by the French."

"Secondary or Symptomatic Choreas—chronic disorders of motion, which depend upon degenerative and irritative lesions of the motor cortex or path. Here may be included the pre- and the post-hemiplegic disorders of movement, the so-called spastic choreas, and many of the cases of congenital and chronic chorea. One malady alone in this group may be separated as an independent affection, viz., the chronic progressive form, the so-called Huntington's chorea."

The chorea major of this classification should no longer be retained, since it is perfectly possible with our present knowledge to correctly describe each and every one of these conditions as an hysteria or a psychosis. Rejecting the term chorea major as unscientific and misleading it necessarily follows that we should reject the qualifying adjective minor in his first division; and since *tic convulsif* or Gilles de la Tourette's disease is a well recognized clinical entity, and the localized tics or habit spasms, as we shall later see, differ so essentially and completely from the affection included in Osler's first group that his third group, choreiform affection or pseudochorea has nothing to recommend it. It is complicating, misleading and unscientific. His fourth group, secondary or symptomatic chorea, is decidedly objectionable but with our present knowledge must remain. Particularly is this true since we adopt the word chorea as an expression of the idea of which it has so long been a sign, irregular, incoordinate and more or less uncontrollable muscular movement; we thus consent to the further perpetuation of an error, respectable and hoary with the sanction of five centuries of doctors.

I believe that you will agree that for convenience of discussion we are warranted in dividing chorea into two classes:—(1) Chorea (Sydenham.) (2) Secondary or symptomatic chorea. Under the latter I would include:—(a) Chronic progressive chorea, or Huntington's chorea. (b) Pre-hemiplegic disorders of movement. (c) Post-hemiplegic disorders of movement. (d) Congenital chorea, more properly congenital athetosis. (e) Chronic chorea. In the following discussion, chorea (Sydenham) will alone be considered.

Chorea is an infectious neurosis of the developmental period of life, but does rarely occur in the adult and still more rarely in the aged. It is marked by irregular, unintentional and uncontrollable muscular contractions of a complicated nature, and by varying departures from the individual's mental and psychic standard. It is an affection of more or less definite onset, course and limitation, is not infrequently associated with infectious diseases, particularly arthritis or endocarditis, and while it has been commonly looked upon as purely a neurosis, it is now believed that its resemblance to the acute specific infections is so great as to warrant its being considered as such, or the reaction of a susceptible nervous organization to the toxins of various infections. Indeed, Sydenham recognized this saying, "Now this affection arises from some humor falling on the nerves and such irritation causes the spasms." We have not improved upon this pathology advanced by the great clinician two hundred and ten years ago.

FORMS.—In the discussion of the clinical picture of chorea it is best to make a division of the subject, recognizing, first, a common form; second, a grave form; third, a paralytic and fourth, a gestational form.

(1) *Common Form.*—The affection usually develops insidiously. The prodromal period is commonly unobserved, but is important. It usually consists of sleeplessness, mental and psychic lassitude, emotional outbreaks, constipation, a capriciousness or lack of appetite, complaints of fatigue and joint pains. Later the child becomes restless, awkward, inattentive, and apparently careless. The teacher often complains to the parents that the child cannot fix its attention, is unable to sit still, that the copy book is blurred and writing slovenly. Oftentimes the child appears not only dull but wilful, fretful, emotional and irascible. Little girls not infrequently complain of their clothing being wet by uncontrollable jets of urine, and frequent urination is common. At

home the child seems awkward in gait, drops its knife or fork while eating; lets fall various articles while attempting to handle them. I have heard these children called "butter fingers" by their mothers. Indeed so many awkward catastrophies occur that an impatient parent may, in ignorance of the condition, chastise the child, when suddenly there will burst forth a shower of muscular phenomena, grimacing, shoulder shrugging, finger twisting, and even complete loss of power to walk, stand, or lie, because of the violent, irregular, uncontrollable, and diversified muscular spasms. If the disease progresses without such an emotional climax the involuntary and uncontrollable movements insidiously begin in various parts of the body, often affecting the musculature of the face producing all sorts of facial contortions. Smacking noises, especially while eating are produced by the incoordinate and spasmodic musculation of the lips, cheeks and tongue. In addition to the spasmodic twitchings there is an exaggeration of all muscular movement and a diseased condition is recognized.

When brought to the physician a peculiar, awkward, motor restlessness is manifested; even when requested, the child is unable to sit still; the forearm is adducted and abducted or rotated; the fingers are extended and separated and again immediately flexed and extended; the wrists are not often flexed or extended but the shoulders are hunched up and in turn dropped. This shrugging of one or both shoulders is quite characteristic and constant. The child twists and flops about in its chair; the head is twisted from one side to the other; the tongue is protruded with a jerk and retracted in the same way, and followed by the teeth snapping together. Because of the muscular spasm the tongue is often twisted and rolled about, especially when protruded, and the same causes produce a deepening of the longitudinal furrow, not infrequently so marked as to give the dorsum the shape of the letter v. Repeated sighing, noisy and irregular respirations are common, and in some of the severe cases phonation may be disturbed. When the child is asked to pick up a pin, he or she grabs for it without grace or precision and usually reaches beyond it; the hand is then drawn backward, the pin fumbled, and in a grotesquely awkward manner picked up. In the severe cases the gait is altered; contractions of the muscles of the legs and thighs may become so marked as to prevent walking and even standing. The movements, except in extreme cases, cease during sleep. It is characteristic of chorea that the involuntary movements do not confine

themselves to definite muscular groups, nor do they occur with any rhythm, but are purposeless, uncontrollable, and undirected, lacking that delicate accuracy and precision which is the grace of youth and poetry of childhood.

At first the affection usually involves one arm, later extends to the other or to the leg upon the same side, occasionally the face is first attacked, more rarely one leg. It may remain limited to one side only and is spoken of as hemichorea, but in the majority of cases it extends to other members and becomes generalized. Voluntary movements increase the muscular twitchings. These inco-ordinate spasms combine with the voluntary movements and modify them in such a way as to produce great awkwardness, especially when any finely coordinate act is attempted. Besides the manifest mental and psychic excitability the child learns from experience that, in order to execute any voluntary movement, it must be made as quickly as possible, and in those moments when the choreic twitchings have been volitionally repressed. If the movement is long continued and requires precision and accurate coordination, the choreic spasm surprises the musculature as it were, and converts the normal graceful action into jerky, bizarre movements, oftentimes absolutely defeating the volitional purpose. Continued coordinate effort is difficult or impossible, not alone because of the spasm but from an actual muscular weakness.

Mental change even in the mild cases is nearly always present, and consists in inability to fix the attention, stupidity or irritability and usually a general weakening of the mentality. Without reference to a true psychosis which may appear in the chorea as a result of a degenerate organization we often observe changes of the *psyche* even in the common forms. The facies of the sufferers are peculiarly stupid and inane; they become peevish, perverse, deceptive, filthy, and cruel to younger children. I have observed a complete and regrettable change in the disposition of a child, due wholly to chorea.

COURSE.—The course of the disease, whether it be insidious or abrupt in onset, is commonly marked by exacerbations and remissions of varying length and degree. Many cases recover without any treatment whatsoever. The average duration of the disease is from six weeks to four months. Occasionally cases are observed to recover with or without treatment in so short a time as two weeks, while others will often persist, notwithstanding the greatest care and skilful medication, for one or two years. Com-

plete recovery is the rule; relapses, however, are extremely common, and death has been known to occur. Rarely the disease becomes chronic and may persist the life-time. Tic and habit spasm not infrequently follow true choreic attacks.

(2) *The Grave Form*.—*Chorea gravis* is ordinarily of acute and intensive onset, and as such may be a severe exacerbation of the common type, or appear as a recurrence of either type. It is characterized by intensification of all the motor, mental and psychic manifestations referred to in the description of the common form. The choreic movements are general, widespread, continuous and violent, usually preventing the patient from standing, walking or even sitting in a chair. I have twice observed cases so severe that a bed with padded side rails was necessary to keep them from being thrown to the floor by the violent contractions. In these cases the movements do not stop during sleep as in the mild form, but oftentimes interfere or prevent it entirely. Speech is usually interfered with, indeed they may become completely aphasic. Mastication and swallowing are difficult or impossible. In the uncared-for cases bruises and excoriations, followed by abscesses and erysipelas, may result. A low fever is always present and may become marked. Mental and psychic effects are so grave that the patients may no longer orient themselves. Delirium with hallucinations is common, indeed, maniacal excitement may appear, but a confusional condition is the rule. Acute paranoia has been observed. These psychic changes usually develop at the height of chorea and last but a few weeks, and are followed by depression, apathy, or perhaps a degree of mental confusion, or fixed ideas of persecution, self-reproach, etc. These cases so marked by psychic depression constitute the chorea insaniens.

(3) *The Paralytic Form*.—The paralytic form of chorea, sometimes referred to by English writers as "limp chorea" is not uncommon. In all varieties of chorea there is more or less weakness of the muscles involved, but this weakness is subordinate in comparison with the more noticeable muscular twitchings. It appears that the choreic poison in the paralytic form expends itself in the production of extreme muscular weakness rather than spasmodic contractions. It seems more likely to me that the muscle is so weakened by the action of the poison upon the motor apparatus that it is no longer able to respond either to the morbid impulses characteristic of the disease or to the stimulus of the will. The paralysis may be monoplegic, hemiplegic, or paraplegic. Although

the authorities state that monoparesis is most common, my own experience is that hemiparesis is more frequently met with.

The diagnosis of paralytic chorea is not always easy. As a rule it occurs in children of seven or eight years of age, and may be either insidious or sudden in onset. The reflexes on the affected side are nearly always abolished, are never increased on the opposite side, are occasionally diminished, but are rarely completely abolished. Normal myotonia is absent, nor can the reaction of degeneration be demonstrated. There is no pain or tenderness of the paralyzed members nor is there any loss of sensation. Muscular atrophy is very, very rarely present, and when present most likely due to some organic nervous affection as myelitis or neuritis accidentally complicating the disease.

(4) *Gestational Chorea*.—The chorea of pregnancy is most common in young primiparæ and those who have been subject to the disease in early life. It may appear at any period of pregnancy, but is most frequent in the first half. This form of chorea varies in intensity but is usually severe and more liable to be followed by mental and psychic changes than other forms. The motor agitation is ordinarily intensive. It may result in premature expulsion of the child, and finds relief in parturition or abortion; on the other hand quite a number of cases fail to be so benefited. It may take on the paralytic form, and that it is more grave than the ordinary form of chorea is evidenced by statistics which show that 20 per cent. of these cases prove fatal.

I have recently observed a patient of Dr. F. W. Linn that presented a paralytic chorea affecting the right upper extremity and in which the ordinary involuntary movements were lacking; the volitional movements, however, were weakly, incoordinately, and awkwardly executed. This case was seen but two days preceding her confinement at term; the chorea immediately ceased after labor.

THE DIAGNOSIS of chorea is ordinarily thought to be a simple matter. Considerable observation in both general and special practice inclines me to the belief that not over 50 per cent. of the mild forms of chorea are treated by the physician. Those affected with the undeveloped forms of the disease attend school and are punished and insulted by the teachers who look upon them as merely restless and irritable children; they are scolded at home, and even when the physician makes the diagnosis they get small sympathy. The majority of them go untreated. General practitioners in and

out among the families of their *clientèle* neglect these children and fail to urge upon the parents the fact that the child is suffering from a serious ailment and should receive consideration, rest and medicine.

Physicians heretofore, and at present too often, have very nebulous ideas as to what constitutes a true chorea and the so-called pseudochoreas, hysterical choreas, etc., throughout the whole ninety-four more or less fanciful and certainly erroneous subdivisions of the subject.

It seems to me that the simple classification adopted in this paper and a conception of the disease as outlined in the definition here proposed will very largely do away with the difficulties of a differential diagnosis. There should be no difficulty in differentiating the incoordinate movements of chorea from the rhythmic tremblings of metallic or toxic poisoning, of hysteria, paralysis agitans, and multiple sclerosis. The peculiar movements of Friedrich's ataxia, athetosis, the unrhythmical muscular trembling and incoordinate movements occasionally observed to precede and follow hemiplegia, since each has its own individual signs and clinical picture so well developed that no one should err.

Huntington's chorea is an affection of late adult life, possessing almost universally a history of hereditary transmission and attended by progressive mental deterioration. The myoclonias and so-called electrical choreas and hysterical disturbances of movement resembling chorea present only a superficial resemblance to the disease under discussion. The tics, particularly, the habit spasms, because they not infrequently develop on a choreic basis or remain as relics of choreic attacks, seem to be the ones that cause the great confusion. This is so remarkable that one not infrequently reads long accounts of the cure of these cases under the title of "The Cure of Chorea."

Stevens and Ranney attempted to demonstrate that they cured large numbers of cases of chorea by correcting refractive errors, and of all of the 12 cases which were the basis of one of Ranney's reports, Osler states that not one of them was chorea, but that they were all either habits spasms, tic, or hysterical chorea. And the 5 cases which Stevens presented to the New York Neurological Society as chorea from eye-strain were examined by the members of that celebrated society who were unanimous in the statement that, "not a single case was true chorea." It is merely a question of mistaken diagnosis which ought not occur under any circumstances.

PATHOLOGICAL ANATOMY.—Since Sydenham stated that chorea “arises from some humor falling upon the nerves and such irritation causes the spasms,” there has been many theories containing both facts and fancies advanced for its explanation, and today, after many wanderings in a wilderness of speculation, we have practically returned to this pathological opinion which was forcibly expressed by the great Englishman two hundred and ten years ago.

Nine years ago Osler stated, “there are no characteristic lesions in fatal chorea.” That is the position occupied today. The literature of the subject contains not a few records of postmortem findings by able pathologists, all of them presenting, however, almost irreconcilable differences. I shall not pursue the subject farther for I feel that your time should not be taken up by a profitless discussion which begins with the unknown and ends nowhere.

PATHOGENESIS.—A satisfactory presentation of the pathogenesis of chorea in the present state of our knowledge is also impossible. It is evident, however, that in chorea we have to deal with an abnormally susceptible nervous system and the action of some toxin or toxins which are the result of bacterial infection. The intimate relationship which seems to exist between rheumatism and chorea has been too well demonstrated by clinicians to be further subjected to criticism or denial. Just what this relation is we are at present unable to state. It is very possible that as Eshner states, in the disease which is commonly designated rheumatism there are several clinical entities, dependent upon a number of causative factors. While the actual causation of chorea yet awaits discovery, the belief is growing that the disease is due to irritation of the motor mechanism, most probably the cells of the cerebral cortex, by some irritant of infectious origin. That individual predisposition usually exists is certain, and that the rheumatic diathesis, particularly when associated with degenerative types and precocious development of the mental and psychical functions, must be considered important causative agents is positive. Indeed, it must be regarded as a disease of neurotic stock, a stock too finely organized to safely undertake the competition, the overwork, anxiety, and successes as well as the failures of school life; unable to successfully withstand the changes of adolescence as well as early pregnancies; in fact anything which produces a lowering of the normal physiologic resistance.

Fright as a causative factor, when carefully analyzed and

observed, nearly always resolves itself into a climax in the course of the disease already established in a susceptible nervous system, and merely brought to full bloom by the influence of a powerful emotion. Peripheral irritations and the so-called reflex irritations such as worms, eye-strain and adherent prepuce play no greater part in the etiology of true chorea than poor hearing and ingrowing toe-nails. I believe that beyond this very meagre and incomplete discussion of the subject, our present knowledge does not warrant us in going.

Heart Disease in Children. — J. Cassel (*Zeitschr. f. Klin. Med.*, Bd. xlviii., p. 389) gives an analysis of 107 cases of heart disease in children; 26 of these were congenital. Cyanosis is the most characteristic symptom of this class; it occurred in 65 per cent. of the 26 cases. Clubbed fingers are also characteristic, and were found in 9 patients. Murmurs in congenital heart disease are always systolic; they were found in only 80 per cent.; 11 patients showed enlargement of the heart. Under-development with anemia was seen in 5 cases. In the patients with acquired heart disease articular rheumatism was the cause in 62 per cent. Out of 75 cases of rheumatism observed by the author, 51 were complicated with endocarditis. Out of 38 patients with chorea 15 had rheumatism, and of these 9 also had endocarditis. The author has never been able to demonstrate gonorrhea as a cause of heart disease in childhood, although he has observed 82 cases of precocious venereal disease. Scarlatina caused valvular lesions in 4 cases, and diphtheria in 1 case. In 18 patients no cause could be determined. Mitral insufficiency was diagnosed in 58 cases, mitral stenosis in 12, and both in 3 cases. Aortic insufficiency occurred 3 times, and stenosis once. Serous pleurisy complicated the heart disease in 7 cases, and cerebral hemiplegia in 3. Three cures are claimed, all symptoms and physical signs having disappeared. —*American Medicine.*

Cerebellar Hemorrhage in a Girl Aged Nine and a Half Years. — H. H. Phillips (*British Med. Jour.*, February 14, 1903) was called to see this case after the child was dead. On that morning she was apparently perfectly well and ran upstairs. But on coming down she complained of headache. In fifteen minutes she was asleep. This sleep deepened into coma, and death occurred in half an hour. Necropsy revealed a large hemorrhage, which had practically excavated the entire left lobe of the cerebellum. The right lobe and cerebrum were normal. The lesion was quite recent, and the cause of the hemorrhage could not be determined. —*Medical Record.*

Clinical Memorandum.

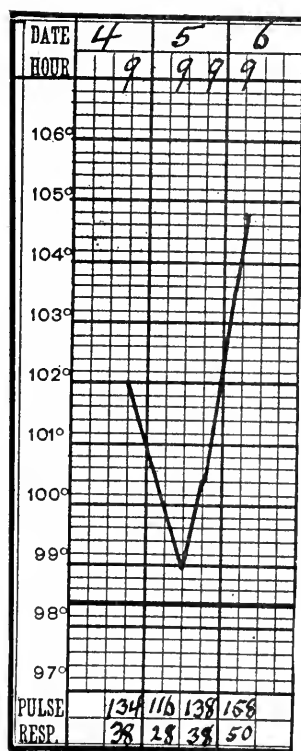
A CASE OF MULTIPLE ABSCESSSES OF THE LUNG.*

BY SAMUEL S. ADAMS, A.M., M.D.,
Washington, D. C.

As the subject of abscess of the lung is under discussion, I wish to report the following case:—

H. C., aged sixteen months, male, white, was first seen for me by Dr. Thomas S. D. Grasty on the afternoon of May 3, 1903, who ascertained that the child had been sick for several weeks with a cough and was then taking an expectorant mixture, together with an emulsion of cod-liver oil. He had not been seen by any physician during the preceding two weeks, during which time he had steadily grown worse.

Dr. Grasty subjected him to a thorough physical examination and made the following report to me. Temperature (rectal) 103.5°; pulse 140; respiration from 60 to 80. He had an expression of distress and was very fretful. He had taken but little nourishment of late, and consequently had lost in weight. The various organs and systems, excepting the lungs, were apparently normal. He decided that the patient had left pyothorax and that an operation was imperative. The next day I saw the child with Dr. Grasty, confirmed his diagnosis and had the patient taken at once to the



TEMPERATURE CHART OF A CASE
OF MULTIPLE ABSCESSSES OF
THE LUNG.

Children's Hospital. He was admitted to my service and I again examined him at 4:20 P.M.

* Read at the meeting of the American Pediatric Society, Washington, D.C., May 12, 13 and 14, 1903.

His general appearance was about that of any child of his age; weight twenty-five pounds; dorsal decubitus, and skin, muscular, osseous, glandular, digestive, circulatory, nervous and genito-urinary systems normal.

The chest showed breathing increased on right and greatly diminished on left side. Voice sounds feeble and distant. Dullness on upper fourth and flatness over rest of left chest. The patient was prepared for an exploratory puncture and I drew off with a small needle inserted below the angle of the scapula, a dram of bloody fluid, gelatinous matter and pus. This fluid was found to contain a large number of streptococci. He was transferred to the surgical ward for operation.

The next morning (May 5th) Dr. Thompson resected a portion of the seventh rib and found the pleural surfaces thickened and adherent, but there was no pus. I entered the operating room just as he was applying the dressing, and one can imagine my amazement upon being informed that there was not a drop of pus in the pleural cavity at the site punctured by me the day before. The resident staff had seen me draw off the pus and the marked physical signs of fluid in the pleural cavity were present, nevertheless I was chagrined over a wrong diagnosis.

May 6th. The child did not react well after the operation, his temperature rose rapidly, convulsions supervened, and he died at 2:30 P.M.

The necropsy, performed by Dr. Mason, the resident physician, about an hour after death, was limited to the organs of the chest. Heart normal, right lung normal. Left lung in a state of delayed resolution; the whole being involved, and filled with large and small abscesses. I found that the needle of the syringe used by me on the 4th had punctured one of the larger abscesses.

The lung is here for your inspection, and you will see where I obtained the pus, as well as the multiple abscesses. The abscesses are not tubercular. I have never before met with such a condition as this.

The thickened and adherent pleuræ and the pus in the multiple abscesses presented the physical signs usually found in pyothorax, hence the error in diagnosis.

A REPORT OF A CASE OF INFANTILE SYPHILIS.

BY THERON WENDELL KILMER, M.D.,
New York.

X. Y., an infant four months old, was brought to the Babies' Hospital (out-patient department) on May 25th with the following history: The family history was negative, both father and mother having always been perfectly healthy. The mother had had one miscarriage at six and one-half months; she has two children, the other child being perfectly well. The mother had nursed this infant since birth and brought it to the hospital because it



FIG. I.—CASE OF INFANTILE SYPHILIS.

had been getting thinner and thinner and had a sore on the buttocks. Upon examination an extensive eruption was seen about the mouth, which the mother stated had been on the infant for one month. (See Fig. I.) Quite an extensive fissure existed at the angle of the mouth. Desquamation of the hands, bird-claw finger-nails, hoarse voice and snuffles were present. Upon the buttocks there was a mass of condylomata as shown in the photograph. (See Fig. II.) This mass extended on all sides of the anus for a distance of about three inches. The scrotum was also involved. The child was put upon bichlorid of mercury, $\frac{1}{200}$ of a grain four times a day, and a diet of half milk and half barley water.



FIG. 11.—CASE OF INFANTILE SYPHILIS.

Two days later the patient was again seen; no improvement. The treatment was continued. The child was rapidly becoming weaker and finally died two days after having first been seen. The case is reported on account of the unusual number of condylomata and the extensive area of syphilitic infiltration.

An Epidemic of Malignant Scarlet Fever.

—Günther (*Berl. Klin. Wochenschr.*, June 15, 1903) relates his observations of 150 malignant scarlet fever cases, which occurred in the recent epidemic at Höchststadt. The epidemic was remarkable for the high age of the patients attacked (many

being adults), for the short duration of the fatal cases, and for the pronounced nervous symptoms present. Many cases died within twenty-four hours from the time attacked, and before the appearance of the eruption. The initial symptoms were vomiting and profuse diarrhea, accompanied by high fever. Delirium and convulsions soon developed, to be rapidly followed by coma and death. The chief subjective symptom was pain in the throat, and intense tenderness of the neighboring nodes. In those cases which survived until the appearance of the eruption, the same was scanty and of a dark, dusky color. In the non-fatal cases, kidney complications were extremely frequent during convalescence. Several cases are reported in detail.—*Medical Record.*

POISONING DUE TO THE CHEMICAL DECOMPOSITION OF BROMOFORM.

BY A. L. OBERDORFER, M.D.,

Formerly House Physician of the Infants' Hospital, Randall's Island,
New York City.

A number of cases of poisoning by bromoform, either through the administration of an overdose or by reason of the precipitation of a solution have been reported, but definite chemical changes in the drug have rarely been observed. For that reason the following case may be of interest.

Clara M., aged four and one-half years, was admitted to the Infants' Hospital, Randall's Island, for treatment for pertussis. The affection in her case was of moderate severity. She was ordered five drops of bromoform, three times daily, for one week. At the end of that time, as the effect of the medication had been satisfactory, the order was repeated. On the second day of the second week Dr. Banta, the senior resident physician and myself were hastily summoned to the ward to see the child. The nurse in charge of the ward informed us that shortly after supper (and just after a dose of the bromoform) the child had begun to stagger and appear drowsy, and when put to bed immediately fell asleep. The child was found to be comatose, the pulse rapid and feeble, the respiration stertorous and shallow, the muscles relaxed, the pupils contracted and insensitive to light, the conjunctival reflex absent. The odor of the breath was like that of bromin and suggested very strikingly the bromoform she had been taking. Hypodermic injections of strychnin were given and attempts made to wash out the stomach, but when the tube was introduced the child's condition became so alarming, the pulse failing and the face becoming cyanotic, that the tube was withdrawn. Nitroglycerin and ammonia were then given and the child responded slightly. At the end of twenty minutes she began to vomit bile-colored fluid mixed with undigested food, and again pulse and respiration almost ceased and she became very cyanotic. Her feet were then elevated, artificial respiration and

rhythmic traction of the tongue practised, and instruments made ready for a tracheotomy, for the cyanosis became so marked and the difficulty in respiration so great as to suggest that some of the vomitus was obstructing the larynx. Oxygen was given and the color and pulse slowly improved. As the child had passed no urine for some time, counterirritation was applied over the kidneys and hot saline irrigation of the colon employed. The first sign of returning consciousness came at 11 A.M. the next day, fifteen hours after the beginning of the attack. No urine was passed up to that time, when three ounces were withdrawn by catheter. This urine showed a trace of albumin, a few hyaline casts, and a number of red blood cells. The child was nauseated and vomited after feeding for two days, but after that recovered rapidly. The urine was normal and the child was allowed about on the fourth day.

Examination of the bottle from which the bromoform had been taken showed the remaining fluid to consist of two well-defined layers. The lower one of a muddy color, the upper one more transparent and of an oily, viscid consistency. A chemical analysis of the contents of the bottle, made by Dr. Dreyfuss, chemist to Bellevue and the allied hospitals, showed it to consist of free bromin and hydrobromic acid. The drug had been ordered in considerable quantities and the stock bottle, from which the ward supply was taken, was obtained from a reliable manufacturing chemist. It had stood for some time unprotected from the light, but a number of patients had received portions from the same bottle without bad effects. A consideration of the quantities taken from the ward bottle and the amount remaining therein had eliminated the possibility of the patient's having received an overdose. As the drug was given only three times during the day it did not seem probable that the symptoms of poisoning in this instance could have been due to a cumulative action. We were therefore led to the conclusion that the poisoning was dependent upon the chemical decomposition that had taken place. Even then the explanation is not entirely satisfactory, inasmuch as the symptoms were so much more severe than one would expect from five drops of even pure bromin or an equivalent quantity of any of the bromin compounds. However, the case is of interest and importance in indicating a danger in the administration of bromoform that should lead to especial care to see that the drug does not undergo decomposition.

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THE PRESENT STATUS OF THE QUESTION OF THE RELATION OF HUMAN AND BOVINE TUBERCULOSIS.

Something more than two years have now elapsed since Koch startled the world with the declaration that human and bovine tuberculosis are different diseases, that human tuberculosis cannot be inoculated into cattle and that if the bovine disease is ever transmitted to man, it is very rarely. The importance of these pronouncements was so great as to set scientific observers and experimenters busily to work upon the problems involved. The results of this work have been coming out steadily during the past

two years, and sufficient is now before us to determine at least one of the propositions at issue.

The work thus far undertaken may be said to follow three general lines. (1) Attempts to inoculate human tuberculosis into animals, especially calves. (2) Efforts to distinguish the human from the bovine bacillus by morphological or cultural differences and then to show that bacilli having the characters of the bovine bacillus could be isolated from cases of tuberculosis in man, particularly the primary intestinal or mesenteric tuberculosis of children. (3) Presentations of the frequency of primary intestinal tuberculosis in children and of facts to suggest a direct relationship to the bovine disease.

The attempts to inoculate human tuberculosis into cattle have met with such general success as to lead one to wonder how a scientist of Koch's standing could have been misled on that point. The list of those reporting successful inoculations is a long one. We may mention the names of Arloing, Hamilton, Delepine, Orth and Esser, Fiebriger and Jensen, Wolff, Deschweinitz, Ravenel.

Moeller alone reports that after a series of experiments he found it impossible to transmit the human disease to cattle. The number of successful inoculations and the fact that they come from Germany, France, England, and our own country would apparently establish beyond question the possibility of such transmission and at once destroy Koch's first proposition, that human and bovine tuberculosis are different diseases. At the same time, lest we attach too great importance to the reports of successful transmission from man to cattle, we must recall that unsuccessful work is very likely to keep modestly in the background, and that at least the great majority of these successes were scored by resort to subcutaneous, intraperitoneal, or even intravenous injections of the bacilli or infected material. Granting the possibility of such transmission from man to cattle, one is likely to be impressed with the difficulty of accomplishing it under ordinary conditions, and it appears probable that such transmission must play little, if any, part in the prevalence of the disease among cattle.

Some of the best work on the differentiation of the human and bovine tubercle bacilli has been done by Theobald Smith and Ravenel. Both of these workers claim to be able to distinguish the two types of bacilli, and also to have demonstrated the presence of the bovine type in cases of primary intestinal tuberculosis in children, thus establishing the possibility of infection of man from cattle. On the other hand De Schweinitz, Dorset and Schroeder, and von Behring deny the possibility of differentiating the two types of bacilli and they would therefore reject the results of the work of Smith and Ravenel. The questions involved evidently require more light.

The question of the frequency of primary intestinal tuberculosis in children has received much attention with the result of bringing out most discordant testimony. Thus while the figures from New York City show 1.4 per cent. of primary intestinal tuberculosis in children, Councilman in Boston finds 35.7 per cent. among sixty-five children dead from diphtheria. Since the appearance of these figures the autopsy records of the New York Foundling Hospital have been gone over with the result of finding that among the last seventy autopsies on children dead of diphtheria there were just 5 cases in which the lesions of tuberculosis were found, and in none of these was there a primary intestinal infection! As Koch has observed, it is impossible to base any argument on such divergent results. On the other hand Koch says that immediately after his address in 1901 he caused an invitation to be sent the heads of the university clinics in Prussia and also the directors of the Institute of Pathological Anatomy of the Prussian Universities to report to himself any cases of tuberculosis of the intestines, peritoneum, or mesenteric nodes, in which the onset of the disease might be traced to the use of food products infected by *prelsucht* (bovine tuberculosis), either from the histories of the cases or from special facts observed. In a year and a quarter not a single case had been brought to his attention. We know that in New York City a similar search during the past two years has

failed to show more than 3 or 4 cases in which such relation could be suspected, and in none of these cases was definite relation proven. Considering the ample opportunity for the infection of children known to exist by reason of the presence of tubercle bacilli in milk, the failure to find cases in which the relationship between the taking of milk and the development of the disease could be demonstrated seems good evidence of their rarity. Biedert, after a long study of the distribution of human and bovine tuberculosis, the population, and the number of cattle in different parts of Germany, concludes that there can be no relation between the two.

In his latest contribution to the subject Koch leaves untouched the question of the transmissibility of the human disease to cattle to take up that of the transmission of the bovine disease to man. He maintains that if such infection occurs it should follow the example of other diseases conveyed by milk, in that there should be local outbreaks of tuberculosis all traceable to a common cause, the infected milk, etc. He then proposes certain criteria to which every case of supposed transmission of tuberculosis from cattle to man should conform, and applying these criteria to the 23 cases of such supposed transmission, which he has been able to find in literature, he concludes that no one of them is satisfactorily proven. It must be said, however, that the practical difficulties in the way of establishing all the desired evidence regarding any given case are very great, and it is therefore likely to be a long time before any case is proven to Koch's satisfaction.

Summing up the matter, it would appear from the evidence at hand that from the theoretical standpoint Koch's pronouncements were not correct. Human tuberculosis can be transmitted to cattle and the two diseases are not different. Practically, however, it appears that he was right, in that transmission of tuberculosis from man to cattle or from cattle to man must be very rare. There seems to be a fear in some quarters that the admission of these facts entails the abandonment of the precautions against the consumption of the milk of tuberculous cows. That we believe to be

a mistake. The movement for the improvement of the milk supply of our cities will prevent that. Independent of the specific question under discussion no one is likely to advocate the use of the milk of diseased cattle as a food for children or invalids.

STUDIES OF THE MILK SUPPLY OF BALTIMORE.

In the *Maryland Medical Journal* for June, 1903, Schorer and Bassett present the results of an extensive study of the milk supply of Baltimore which is of the greatest interest to all engaged in the work of securing better milk for our cities. These studies included the examination of numerous samples of milk, obtained at farms, at railway stations, from wagons, and from stores, during the months of July and August, 1902. The results of their work are summed up in the following table:—

TABLE SHOWING CONDITION OF BALTIMORE MILK DURING JULY AND AUGUST, 1902.

	At Dairy Farm.		At Railroad Station. 60 Samples.	As Sold from Wagons. 49 Samples.	As Sold in Stores N'r Belair Market. 8 Samples	As Supplied to Sanitarium Patients before Admission. 66 Samples.	Better Class of Pairs. 26 Samples.	Condemned by Milk Inspectors. 17 Samples.
	Better Class. 33 Samples.	Ordinary. 40 Samples.						
Specific gravity...	1.031	1.031	1.026	1.0293	1.0291	1.028	1.031	1.020
Fat, %	5.0 %	4.0 %	5.82 %	4.12 %	4.64 %	3.5 %	4.93 %	3.23 %
Lactic acid, %	0.16 %	0.18 %	0.184 %	0.204 %	0.205 %	0.206 %	0.196 %	0.135 %
Formaldehyd, %	....	....	15	57	50	43	0 00	43
Bacteria } % acid agar	....	....	1,768,000	4,038,000	....	....	....	8,755,000
per c. c. on } Neutral agar	76,500	349,900	1,711,000	....	5,162,000	4,876,000	1,339,000	7,052,000
Bacteria per c. c. Less than 1,000,000.....	....	....	45 %	24.5 %	0.00 %	17.3 %	77 %	15.4 %
Percentage of milk sold on day of milking.	....	....	....	22.4 %	12.5 %	32.7 %	...	...

In the discussion of their results the writers bring out facts of the very greatest importance. A gradual reduction in both fat and specific gravity is noted as the milk passes from the dairy to the consumer. The change in fat is marked, while the lactometer reading does not vary so much. Simultaneous skimming and dilution with water change the specific gravity but little. The

loss of from 1.2 to 2.3 per cent. of fat after the milk leaves the railway station is good evidence of adulteration with water. The lower percentage of fat in the milk at the dairy farms is accounted for by the fact that this milk was all from one farm, not a mixed milk, and therefore not comparable to the other results in fat and specific gravity.

The variations in acidity are also notable. The authors' comments on this point are instructive. Freshly-drawn milk has a distinct acidity, due to dissolved carbon-dioxid, acid phosphates, etc. With the growth of bacteria the acidity increases, due to the formation of lactic acid and other allied acids. This increase is moderate during the period of incubation, as the preliminary bacterial growth is called. When the bacterial content becomes high and multiplication is rapid, the acidity also increases rapidly until the casein is precipitated and the milk rendered unsaleable. To prevent this a common practice is to keep down the acidity by the addition of alkaline preservatives, or to prohibit bacterial growth by the addition of bactericidal substances, of which formaldehyd is the most commonly used. Milk of twelve to twenty-four hours' age, properly preserved, will have an acidity equivalent to 0.15 to 0.19 per cent. lactic acid. Exceptionally good milk under very favorable circumstances may have an acidity as low as 0.13 per cent. twelve to eighteen hours after production. In practice such results are rarely met with in unadulterated milk. The addition of water often lowers the acidity. For instance, the percentage of acidity of the condemned samples averaged 0.135 per cent. of lactic acid.

As a means of determining the suitability of a milk for infant-feeding the acid test has been used successfully during the past two summers at Mt. Wilson. Milk of an acidity less than 0.14 per cent. should be rejected as adulterated by the addition of water or alkaline preservatives. Milks of over 0.2 per cent. acidity are usually of high bacterial content, and as such cannot be regarded as free from the suspicion of contamination.

The percentage of milks in which formaldehyd was found is

striking. As received at the railway stations 15 per cent. of the samples showed this preservative, while of the milk sold to the consumer from 43 to 57 per cent. had been so treated. There are many persons who consider the addition of a small amount of formaldehyd to milk harmless, but, as the authors say, two facts of importance should be recognized. First, that milk ought to be produced, aerated, cooled, transported and sold, so that no preservative should be required to keep it from souring; and, secondly, that if formaldehyd is to be added to milk at the farms, and again upon its arrival in the city, as evidently must have happened in some of these cases, it is clear that the amount may be so considerable as to be harmful.

The column presenting the results of analyses of milk from the sources from which the patients of the sanitarium had received their supply previous to their admission is of peculiar interest. The sanitarium, as is well known now, for it was in this institution that the remarkable work on the presence of the Shiga bacillus in the stools of children suffering from summer diarrheas was reported a year ago, is devoted to the care of these cases. While the exact relation between the number of bacteria in milk and the incidence of diarrheal diseases in children is not yet clear, there can be no doubt that milk of high acidity and containing more than 5,000,000 bacteria to the c.c. is not fit for use as food for children. We would wish to know more of the species of bacteria composing this enormous total.

The last column of the table, giving the analyses of the specimens of milk rejected by the Board of Health inspectors, shows very clearly to what extremes the unscrupulous dealer will go, and emphasizes the need of rigid inspection of all milk offered for city consumption.

The high importance of the work done by these investigators must be apparent to all. Let us hope that it may stimulate similar research throughout the country, till the milk supply of all our cities is put upon a proper basis.

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Traité des Maladies de l'Enfance. Second Edition. Published under the direction of **J. Grancher**, Professor of the Faculty of Medicine of Paris, and **J. Comby**, Physician to the Hospital for Sick Children. Vol. I., Pp. 1,046. Paris: Masson & Co. 1904. Price of Vol. I., 22f.

The new edition of this great work is, like the first, to consist of five volumes, the first of which is before us. The new edition embodies so many changes and additions as to merit the designation of a new work. More than a hundred new articles are to be given. The number of collaborators has been raised from seventy-seven to 115, among whom there are forty foreign as against ten in the original work. This extension is designed to give an international character to the work. The general plan of the new edition is practically that of the old one.

The first volume opens with an introduction by Grancher, in which he deals in a general way with the changes that recent years have brought in pediatrics. The retirement of Marfan from the joint editorship is noted with regret.

Comby contributes the first chapter of the book, on the physiology and hygiene of infancy. The section on artificial feeding is interesting by reason of its simplicity. For the first month a dilution of equal parts milk and 5 per cent. sugar solution, for the second month two-thirds milk and one-third sugar solution, for the third month three-quarters milk and one-quarter sugar solution, and for the fourth month pure milk! Jacobi's use of cereal decoctions is mentioned, but otherwise the work of American authors on this subject receives no notice.

Sevestre and Martin contribute an encyclopedic article on diphtheria, in which are very thorough descriptions of tracheotomy and intubation with a comparison of the two methods. Full credit is given O'Dwyer's work. The article is an excellent one in every respect.

Comby contributes notable articles on measles and most of the other acute infectious diseases. Scarlatina is thoroughly written up by Moizard. Aviragnet deals authoritatively with the subject

of tuberculosis. One of the features of the book is the completeness of the treatment of infectious diseases. Thus we find yellow fever treated of by Moncorvo; Asiatic cholera by Duplacq; bubonic plague by de Brun; glanders and farcy by Delcourt; anthrax and actinomycosis by Comby; yaws by Jeanselme, etc., etc.

The diseases of nutrition, among which are included arthritism, diabetes, the diseases of the blood, rickets, scurvy, etc., are included in this volume, as are also the intoxications. Among the latter Monti describes the more common and acute intoxications. Altogether one is impressed by the scope of this work. It will undoubtedly not only maintain, but add to the fame won by the first edition.

† **Clean Milk.** By **S. D. Belcher, M.D.**, with an introduction by **W. H. Park, M.D.** Pp. 145. New York: The Hardy Publishing Company. 1903. Price, \$1.

The work in the field which supplied the data for this small volume was performed under a grant from the Rockefeller Institute for Medical Research. The work was under the supervision of Dr. Park and formed part of the movement for the improvement of the milk supply of New York City, conducted by Dr. Park, with the co-operation of the Rockefeller Institute, for the Department of Health of this city. In the introduction Dr. Park brings out the fact that within recent years the development of the science of bacteriology has materially altered the conception of what constitutes good milk. He enforces the lesson of the importance of preventing the bacterial contamination of milk by citing the many instances in which milk has been the carrier of disease, and discusses briefly the manner in which the milk became contaminated.

Dr. Belcher takes up the discussion of the production of milk and with the utmost directness and simplicity points out the possibilities of pollution of the milk in the various procedures which are involved in its production, transportation, and delivery to the consumer. It is evident from beginning to end that the book is the work of one thoroughly familiar with the subject. No detail of the dairy industry is omitted. From the question of pastures to stables, to the milking process, the methods of preserving and transporting the milk, to its handling in the home and the care of

the milk-bottles, every factor in the securing of clean milk is fully treated. At each step of the process the author points out the simple means by which contamination may be avoided and milk produced that will come within the requirements of the Milk Commission of the Medical Society for certified milk. The author's suggestions have the great advantage of practicability. They are not such as only the wealthy can afford to follow. She shows that one milkman with only a twenty-acre farm on which all the work was done by himself and wife and whose dairy at the first visit was found in most lamentable condition, at comparatively small expense apart from hearty co-operation, was able to produce a milk with less than 30,000 bacteria to the cc. This practicality of the book together with its simplicity ought to make it of great value to every dairyman who can be interested in the improvement of his product. The book ought to be of great service in the propaganda for clean milk.

A New Method to Determine the Quantity of Milk to be Given to Artificially Fed Children. — Adam (*Jahrb. für Kinderheilk.*, 1902, Vol. xvi., p. 29) describes the method which he uses in the artificial feeding of new-born infants, and which he has found to be extremely valuable in nearly all cases in which artificial feeding was required. He uses in all cases whole milk, diluting it considerably during the first three months. The quantities which his experience has taught him to advise during these months, and upon which the children seem to thrive, correspond closely with those prescribed by others for breast-fed children, sometimes they are even smaller than these. Between the seventh and thirteenth week he advises 800 cc. in 24 hours, and does not increase the quantity to more than 1 liter per day up to the end of the first year. Concerning the quality of the milk mixture the condition of the child must remain the chief guide. The general rule which he followed was this: $\frac{1}{3}$ of the daily volume of milk corresponding to the age of the child was multiplied by the weight of the child in kgrs., and this result corresponded to the amount of whole milk used—a child three weeks old and weighing 3 kgrs. ($6\frac{1}{2}$ lbs.) will usually get 500 cc. (1 pt.) of milk, of this 300 cc. (10 ozs.) is whole milk, the rest is dilution. In occasional cases, during the first few months of life, he considers warm cream mixtures in definite proportions (he gives tables for these proportions) preferable to the above-mentioned milk mixtures.—*American Medicine*.

Society Reports.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.—LONDON.

The Provincial Meeting, Saturday, June 20, 1903, at the Alexandra Hospital for Sick Children, Brighton.

DR. WAYLAND CHAFFEY, CHAIRMAN.

MR. A. H. TUBBY read a paper entitled,

IS THE URBAN HOSPITAL TREATMENT OF EXTERNAL OR
SURGICAL TUBERCULOSIS JUSTIFIABLE?

He had examined the statistics of four hospitals for children's diseases in London, in order to see whether the results of operations on tuberculous joints or lymph nodes were satisfactory. Of 218 cases, 68 were cured, 128 relieved, 9 died in hospital, and in the remaining 13 the result was unknown. It was pointed out, however, that the word "relieved" was of doubtful significance, and when applied to tuberculous affections meant little or nothing. It was suggested that tuberculous children should not be treated in London hospitals, but in properly equipped establishments in the country or at the seaside.

MR. CLINTON DENT then said that the issue raised was of such importance that he thought a sub-committee should be appointed to consider the matter. The following were appointed to serve on the sub-committee:—Mr. Clinton Dent, Dr. Dawson Williams, Mr. Sydney Stephenson, Mr. Jaffrey and Mr. Tubby.

MR. CLEMENT LUCAS read a paper upon the

REMOVAL OF A TIN MOUTH-ORGAN FROM THE SMALL INTESTINE
OF A CHILD AGED THREE YEARS.

The chief interest lay, perhaps, in its localization by means of skiagraphy. In this case the metal body was situated in the upper part of the jejunum. Mr. Lucas compared various features of the case with those presented by another which he had previously brought before the Society, where a large nail had been situated in the second part of the duodenum. Mr. Clinton Dent referred to an interesting case of his own that had given rise to some difficulty.

DR. EDMUND HOBHOUSE read a paper upon

THE FUNCTIONS OF CHILDREN'S HOSPITALS

and said that, although attached to a general hospital, he thought his work at the children's hospital the most interesting and important part of his medical life.

MR. R. H. PARRY then read a paper on and showed photographs of

CASES IN WHICH ENLARGED CERVICAL GLANDS

had been removed through an incision in the hairy scalp. He had operated in this way upon 20 cases. Messrs. Lucas, Morgan and Tubby commented upon the method.

DR. GEORGE CARPENTER read a paper upon

NEPHRITIS IN A SYPHILITIC INFANT.

emphasizing the importance of the relation between syphilis and nephritis in children.

DR. CARPENTER also read a paper upon

SPLENOMEGALY IN INFANTS,

348 cases of which had come under his notice. In only 66 could rickets or syphilis be definitely excluded.

DR. EDMUND CAUTLEY read a paper upon a case of primary pneumococcic meningitis. The child presented symptoms of meningitis but no physical signs were present in the lungs. A diplococcus was obtained in cerebro-spinal fluid drawn off by lumbar puncture. The child recovered, but died afterwards in a fever hospital of diphtheria, but, unfortunately, permission for an autopsy could not be obtained.

DR. ALEXANDER MORISON read a paper upon the

THE USE OF OPIUM IN THE CARDITIS OF CHILDREN

and brief summaries of other papers quickly followed. They were upon dilatation of the bronchial tubes after measles by Dr. Theodore Fisher; one on an obscure case of cerebral tumor which for a time became quiescent by Mr. Eldon Pratt, and another of considerable importance by Mr. Sydney Stephenson upon a condition of the optic papilla likely to be mistaken for optic papillitis. Beautiful drawings of the condition were passed around.

In the evening the members of the Society dined at the Grand Hotel, and the following day Dr. Wayland Chaffey entertained them at lunch at the Hotel Metropole.

THE NEW YORK ACADEMY OF MEDICINE.—SECTION
ON PEDIATRICS.

Stated Meeting October 8, 1903.

HENRY HEIMAN, M.D., CHAIRMAN.

GANGRENE OF TOES IN A NEW-BORN INFANT.

DR. S. V. HAAS presented an infant of four weeks. According to the history, the left leg was noticed to be cyanotic up to the knee on the day following the birth of the child. When first seen by Dr. Haas, about one week ago, the left foot was swollen and there was such extensive gangrene of the great toe and last phalanx of the second toe that these parts were amputated. Enlarged lymph nodes were felt in the cervical, axillary and inguinal regions. The family history threw no light on the case, and the urine examination was negative. No enlargement of the liver or spleen was detected. The case was presented for diagnosis.

DR. MARTIN W. WARE said that, if only the soft parts had been affected, he would have made a diagnosis of gangrene resulting from embolism produced by infection of the umbilicus, but as the bone was likewise involved he was disposed to suspect syphilis.

DR. SARA WELT-KAKELS said that she now had under observation a child of about twenty months who had gangrene of the little finger of the right hand as well as an erythema nodosum. In other respects the child was healthy.

DR. L. E. LAFETRA would not accept the diagnosis of syphilis.

DR. HENRY HEIMAN remarked that the fact of the disease being unilateral also argued against its being luetic.

DR. F. L. WACHENHEIM presented a paper on

THE HEMORRHAGIC DISEASES AND THEIR ALLIES IN THE LIGHT OF
MODERN PATHOLOGY.

He said that spontaneous hemorrhage was caused by a yielding of the intercellular cement of the vascular tissues as a result of defective nutrition, but authorities were not agreed as to whether the malnutrition or the thrombosis was the prior condition. Degeneration of the vascular endothelium would result from deficient food and from poisons in the blood, and experience showed that these two factors were combined. The author then rapidly reviewed the various classes of blood poisons. Potassium chlorate was cited as an example of the class known as hemoglobin poisons, and snake poison was instanced as a type of blood toxin. The

speaker said that obstructive jaundice presented certain features that resembled hemophilia. Agglutinins had been found in the blood in persons suffering from jaundice, and it was known that their presence pointed to the existence of a toxemia. It was insisted that the characteristic feature of hemophilia was not spontaneous hemorrhage so much as deficient coagulation. He believed that scurvy and rachitis belonged to the same group, and that spontaneous hemorrhage by itself was a very unsatisfactory pathological basis for classification. Some observers looked upon scarlatina, rheumatism and ordinary sepsis as only different forms of sepsis. Typical rheumatic endocarditis and chorea were observed in children who had never presented an appreciable joint symptom.

DR. P. W. NATHAN read a paper on

ETIOLOGY OF RICKETS.

He stated that the essential part of the pathological process in rickets was defective calcification, but so far no local condition was known to be the cause of this defective calcification. It was true that the total exclusion of calcium chlorid from otherwise suitable food would cause rickets, but little could be inferred from such an artificial condition, and the result was not what was known clinically as rickets. Mother's milk, cow's milk and most of the infant foods contain calcium in considerable quantity. Zweifel took the ground that a deficiency of hydrochloric acid led to defective assimilation of calcium, and, hence, to the production of rickets, but his evidence was far from being conclusive. In the first place it was not true that hydrochloric acid was deficient in infancy, and various experiments went to show that even in severe forms of rachitis there was a normal assimilation of calcium. Dr. Nathan said that he had kept three infants, each about three months old, under observation for about eighteen months. When monocalcic phosphate and sodium chlorid were administered and the infants were fed on condensed milk, rickets developed in three or four months, but they improved so soon as placed upon more suitable food. He had also studied this subject still further in quite a large number of cases. Some of the infants were given phosphorus, others were given calcium phosphate, while still others received no medicine. It was found that those who received medicine did no better than the others.

In closing, Dr. Nathan said that he would reserve for a future paper the exposition of the anomaly of metabolism by which rachitis is produced.

Current Literature.

--- PATHOLOGY.

Weaver, G. H. : Vitality of Bacteria from the Throats of Scarlet Fever Patients. (*Journal of Medical Research*, May, 1903, p. 246.)

Streptococci are most abundant in the throats of scarlet fever patients early in the disease; they become less numerous later, but remain as long as any of the other bacteria present, and in many instances outlive them. The longest time after which streptococci could be cultivated from the dried material was ninety days. Twenty-one cultures were made upon milk. One culture was still alive after 200 days. The main points of the article are summed up, as follows:—(1) Streptococci are almost always, if not constantly, present in the throat in cases of scarlatina. In early stages they are usually present in very large numbers, becoming less numerous as the disease progresses. (2) The streptococci in the throat of scarlatina patients resist drying as long as the other bacteria usually present, and they often outlive all other forms, being alive as long as ninety days after the material is collected. (3) The streptococci remain alive for a long time in milk. (4) A small amount of sugar in nutrient media increases their value for the cultivation of streptococci. (5) Streptococci from scarlatinal anginas are not different from streptococci from other sources, so far as cultural and morphologic peculiarities are concerned.

Trudeau, E. L. : Artificial Immunity in Experimental Tuberculosis. (*New York Medical Journal and Philadelphia Medical Journal*, July 18, 1903, p. 105.)

The history of the efforts to produce immunity to tuberculosis by the injection of toxins and later by the injection of dead or living bacilli is given in full. Trudeau's experiments have been made on rabbits and guinea-pigs with a culture of human origin, first grown upon potato, then passed through a rabbit, and now for nearly eleven years grown on artificial media. The animals were treated by repeated injections of increasing quantities of living bacilli from this culture. The results of the experiments so far made are, as follows:—In thirty-six controls the average life

after virulent inoculation was fifty-seven and two-tenths days, and in the sixty-six vaccinated animals one hundred and fifty-four and three-tenths days, so that the vaccinated animals lived nearly three times as long as the controls. This includes, however, experiments made before the bacilli were sufficiently attenuated to prove harmless, and very much better results can be obtained by preventive inoculation with this culture at present.

Franklin, J. H. : A Case of Smallpox in the Fetus. (*Medical Record*, September 5, 1903, p. 377.)

W. M., an American, aged thirty-two years, became ill on the evening of March 1st. The typical eruption of smallpox appeared on March 4th. The family, consisting of the wife and three children, were vaccinated on March 5th. Mr. M.'s case ran the typical course of variola.

Mrs. M., of German descent, aged twenty-eight years was seven and a half months pregnant at the time her husband was attacked. She claimed she had never been vaccinated. Five days after the first vaccination she was vaccinated again, successfully. During the time of the quarantine, which was until April 1st, Mrs. M. complained of no constitutional symptoms whatever and there was no skin eruption of any kind. Two weeks following the raising of the quarantine, or on April 14th, she began to have labor pains, and on the afternoon of that date was delivered of a full-term child, with the typical eruption of smallpox in the pustular stage. The lesions on the child were large, at least a quarter of an inch in diameter and deeply umbilicated, and while very numerous, were discrete. The child had evidently been dead for several days, as it was slightly macerated. The mother made an uneventful recovery, no rise of temperature occurring, and she was up on the tenth day.

Huddleston, J. H. : Immunity against Smallpox. (*American Medicine*, September 12, 1903, p. 426.)

Susceptibility to vaccination returns frequently within one year from the time of a successful vaccination. Many instances are on record of successful vaccination after an interval of only six or seven months and cases have occurred in which the interval has been as short as three months. These instances are of course simply in accord with what is known of the variable duration of artificially induced immunity against other diseases. Even variola

does not always confer permanent immunity. Every child should be vaccinated at the time of election during the first year of life and should be revaccinated before beginning school life with its possibility from exposure. Every person, no matter at what age, should be vaccinated at a time of possible exposure to smallpox unless he has been successfully vaccinated within three months.

Gregg, M. E. : An Unusual Double Monster. (*American Medicine*, September 5, 1903, p. 390.)

The mother was a young Indian woman. The monster is described thus:—The body was continuous, there being only a slight constriction at the middle line where the cord was inserted. The spine was continuous from one head to the other; the bodies, extremities and heads were seemingly perfect in their development. The sexual organs were at one side between the diverging legs, and were evidently those of the female. Only one had a perforate anus, which was also located in that locality.

The birth was easy and rapid, about 6 A.M., July 27th. One died of asphyxia on the following afternoon, the other on the following morning. The babies were said to have cried and breathed alternately. The parent is the mother of a healthy, well-formed boy of four years, and there is no item of interest in the family history.

Zahorsky, J. : The Leukocytes in the Summer Diarrhea of Infants. (*New York Medical Journal* and *Philadelphia Medical Journal*, September 12, 1903, p. 505.)

The writer sums up his observations as follows:—I must conclude, with Knox and Warfield, that the leukocyte count in the summer diarrhea of infants is too variable to be of any special diagnostic importance. But I believe that a differential count is extremely valuable in estimating the intensity of the intoxication. This is a very simple procedure, and can be done with a cover slip preparation obtained at the bedside and examined at the office. In studying the figures given by Japha and Knox and Warfield, also my own observations, I must conclude that the normal ratio of the polymorphonuclears to the lymphocytes in healthy infants is 2 to 3 or 4. In gastroenteric disease this ratio becomes changed; the leukocytes gradually increase and the lymphocytes diminish, when the ratio becomes 1 to 1, 4 to 3, 3 to 2, 2 to 1, and 3 to 1 successively. This predominance of the polymorphonuclears, there-

fore, becomes a corroborative sign of the intensity of the morbid process. A great relative increase in the polymorphonuclears means that the baby is pretty sick, whatever other signs may indicate.

Billings, J. S., Jr.: The Value of Confirmatory Cultures in Diphtheria. (*New York Medical Journal and Philadelphia Medical Journal*, September 12, 1903, p. 493.)

As the result of his observations made during eight years' service in the diagnosis laboratory of the Board of Health, Billings formulates the following conclusions on the value of secondary or confirmatory cultures from the throat in cases of suspected diphtheria.

I. A certain small percentage of cases of true diphtheria fail to show diphtheria bacilli on first culture, this failure being due in many instances to a conjoined infection with the septic micrococci. With the exception of these cases, the statement that a case is probably not diphtheria can be made on one negative culture up to the tenth day of the disease.

II. Valid reasons for requesting a confirmatory culture in negative cases are: (a) Cases showing no growth whatever on the culture medium; (b) complete contamination and liquefaction of the culture medium, in cases which are clinically diphtheria; (c) cases showing the presence of suspicious or diphtheria-like bacilli; and (d) croup cases in infants or children, where the membrane is limited to the larynx, and the duration of the disease is less than five days.

III. Dryness of culture medium, scanty growth on culture medium, and recent use of antiseptics with satisfactory growth of other organisms than diphtheria bacilli, do not alone furnish sufficient grounds on which to request a confirmatory culture.

In accordance with these conclusions, the system of reporting the results of primary diphtheria cultures at the Diagnosis Laboratory of the Department of Health has been modified.

Gagnoni, Enrico: Eosinophilia in an Infant Fed at the Breast by a Mother with Tenia Mediocanellata. (*Riv. di Clin. Pediat.*, May, 1903.)

The author reports a case of tapeworm (*tenia mediocanellata*) in a mother, whose infant, aged two and one-half months, showed a marked increase of the eosinophile white cells in the blood. The

cosinophiles reached 12 per cent., in the child, while in the mother they were in the proportion of 8 per cent. to the other forms of white cells. While it is not possible to draw conclusions from a single case, the author thinks that this instance is interesting for two reasons. First, because the general opinion is now that tapeworms secrete substances which are absorbed into the blood and produce the symptoms of helminthiasis, an hypothesis which would explain the influence of the mother's milk upon the health of the nursing infant, if the former were infected with tapeworm. Secondly, because the theory that the eosinophilia is due to this toxic substance secreted by the tapeworm coincides with the ideas of Ehrlich, the toxic secretion either stimulating the formation of eosinophile cells in the marrow, or acting as a positive chemiotactic and attracting the eosinophilic cells into the circulation.

Park, W. H., and Dunham, E. K. : A Clinical and Bacteriological Study of a Number of Outbreaks of Dysentery in which Dysentery Bacilli were Found. (*Medical Review of Reviews*, July 25, 1903, p. 624.)

The authors summarize their observations, as follows:—

From a fatal case of dysentery occurring in a severe and extensive epidemic in a small town situated just north of New York City a bacillus was obtained which in all but one of many cultural tests seemed identical with Shiga's Japan and Flexner's New Haven culture. The only point of difference being that the Tuckahoe culture produced a faint trace of indol in peptone solution.

In a small settlement on the Maine coast, Seal Harbor, bacilli were obtained from a serious case of dysentery which resembled closely but were not identical with Flexner's Baltimore and Manila cultures, since they differed slightly in agglutination tests. In two institution epidemics in New York City bacilli almost identical with Flexner's Baltimore cultures were obtained from a number of cases. Serum obtained from a number of persons in these different localities who were suffering from or had recovered from dysentery gave positive reactions in dilutions of 1 to 50.

With reference to the occurrence of the bacilli in other conditions than dysentery the writers say they have not been able to find these bacilli or obtain a marked serum reaction in the summer diarrhea of children where no dysenteric symptoms appeared in the case examined or in other cases in the same house or neighborhood.

MEDICINE.

Josias, A.: Gangrenous Appendicitis with General Peritonitis, Perforation of the Diaphragm and Left Lung. (*La Pédiatrie Pratique*, May 1, 1903, p. 2.)

The case refers to a girl of fourteen and one-half years, with a tubercular family history. The symptoms of fever, cough, vomiting, constipation followed by diarrhea, had led to the diagnosis of tubercular peritonitis. On admission to the service, the child was pale and worn; nausea, vomiting and diarrhea had ceased; abdominal tenderness persisted with some inflation and dullness over the right side; no ascites. She coughed, and the sputum showed pneumococci and streptococci. At the base of the left lung, posteriorly, dullness, distant respiration and friction rubs were heard; the urine contained a small quantity of indican. The condition became immediately worse with the onset of frequent, foul, green or yellowish stools, and the appearance of subcrepitant râles at the left base. Five days after admission she was suddenly taken with severe cough and vomiting of 300-400 grams of very foul thick liquid of a chocolate color. Examination showed colon bacilli, pneumococci, streptococci, micrococcus tetragenes and fusiform bacilli. This vomiting continued with little interruption until her death, two days later. At autopsy there was a general purulent peritonitis with pus in large pockets in the right and left hypochondriac regions. The appendix was gangrenous; there was a perihepatitis. Evidences of pleurisy were seen, and congestion of the left lower lobe; at the base of this lobe there was a small area of purulent bronchopneumonia, with perforation of the lung. At the apex alone a few cheesy tubercles were discovered. The diaphragm showed a perforation in the region of the left vault. Thus the pus from the abdominal cavity had burrowed through the diaphragm into the lung, causing death of tissue and a purulent bronchopneumonia.

It will be noted that the tubercle bacillus was at no time found.

Wells, H. G.: Fourth of July Tetanus. (*American Medicine*, June 13, 1903, p. 954.)

In both New York and Chicago there is produced an enormous augmentation in the number of deaths from tetanus, sometimes amounting to more than occur in all the rest of the year together, and nearly all these July cases are the result of wounds produced

by blank cartridges. The frequency with which tetanus follows these wounds suggests that the cartridges must be contaminated with tetanus bacilli. In 1899 the writer examined 200 cartridges, and in 1903, 50 more, without finding the bacilli in any. In 1900 the Boston Board of Health examined 350 cartridges with negative result. On the other hand tetanus bacilli are frequently found in street dirt, and in this must lie the danger. The careful treatment of all wounds made by the blank cartridges is enjoined.

Palier, E.: Scarlatinal Arthritis. (*American Medicine*, July 18, 1903, p. 111.)

A girl, ten years old, had a severe scarlet fever, which, at the end of four weeks, seemed to have reached convalescence. At that time the evening temperature began to rise and soon reached 104° to 105°. The patient soon began to complain of pain, first in the cervical region, then in the lower extremities. Soon all the joints except the shoulder and hip were severely affected. Even mastication was difficult. Treatment consisted of the application of an ichthyol ointment, immobilization, and the internal administration of benzoate of soda. At the end of a week recovery set in.

Morse, J. L.: Fetal, Congenital and Infantile Typhoid. (*Medical News*, August 1, 1903.)

The writer sums up his paper thus:—Typhoid fever occurs in infancy. Except for the lessened exposure in the first year through food, there is no apparent reason why typhoid should be less common in infancy than in later life; in fact, because of the greater susceptibility of infants to bacterial infection, it should be more common. Nevertheless, judging from the number of cases reported it does occur less frequently. This infrequency may be real or apparent. If apparent, it must be because the disease is unrecognized or mistaken for other conditions. Analysis of the reported cases, in which the diagnosis rests on a positive Widal reaction or positive cultures of the typhoid bacillus, shows that the type of typhoid fever in infancy, at any rate as regards its symptomatology, is essentially the same as in adult life. It is possible that this conclusion may be erroneous, as it may be based on the severe cases alone, the milder having escaped notice. The Widal test in large series of cases not clinically typhoid, and bacteriological examinations in large series of autopsies, offer the best means of solving this problem. The results thus far obtained

by these methods are unimportant and inconclusive. They should be continued in large numbers of cases, especially in epidemics and in cities where typhoid is prevalent. In the light of our present knowledge, the symptomatology of typhoid fever in infancy is essentially the same as in adult life, and it is really and not apparently infrequent at this age.

Friedlander, A. : Rheumatism in Childhood. (*The Cleveland Medical Journal*, July, 1903, p. 307.)

The clinical manifestations of rheumatism in childhood are very different from those seen in adult life. The arthritic symptoms are not so marked. The growing pains of children are often rheumatic. Endocarditis is at its maximum in the rheumatism of childhood. The heart lesion is not so much a complication as a manifestation of the rheumatism. The close association with chorea is well known. Peliosis rheumatica is quite common. Rheumatic nodules are more often seen in the rheumatism of childhood than in that of adults. These nodules are subcutaneous masses of fibrin, cells, and fibroid tissue of varying size. They are most apt to occur over the malleoli, at the margins of the patella, or along the extensor tendons of the hands, fingers, or toes. Recurrent epistaxis for which no local cause can be found is another symptom of rheumatism in children.

Brown, E. J. : Cast from a Case of Membranous Croup. (*Medical News*, June 27, 1903, p. 1,207.)

A cut is presented of a cast of the trachea and bronchi from a case of diphtheritic croup in a boy, aged six years. The cast was discharged following an effort to intubate.

Newcomb, James E. : Congenital Laryngeal Stridor. (*Medical Record*, July 25, 1903, p. 127.)

This affection was first described by Rilliet and Barthez in 1853. It has been known by various names, inspiratory stridor of nurslings, stridulous respiration of the newly born, etc. The malady predominates in male babies. Laryngeal examination has in most cases shown some abnormality or deformity. The following explanations of the cause of the affection are discussed at length. (1) Thymus enlargement causing pressure. (2) Cicatricial band across the larynx. (3) Acquired brain lesion causing anatomical deformity. (4) Lack of development of the cortical

centres for respiration, especially of the laryngeal centres. (5) Posticus paralysis. (6) Muscular spasm, glottic or subglottic and possibly phrenic. (7) Adenoids. (8) Congenital deformity of the superior laryngeal aperture, aided by flaccidity of the parts in infancy, but not entirely dependent thereon.

Crisafi, Domenico: The Functional Activity of the Liver in Children Tested with Levulose. (*Riv. di Clin. Pediatr.*, May, 1903.)

The author calls attention to the method of Strauss of testing the functional activity of the liver by the administration of levulose, which is not eliminated by any other organ. He experimented with this method in four children, administering to each 100 grams of levulose. Three of these children who objectively, and judging from the previous history, had no disturbances of the liver, showed no levulosuria after the test, while one of them that had a catarrhal jaundice some time before, showed the presence of levulose in the urine after the administration of this substance. The author then proceeded to test this diagnostic method in both healthy and sick children, and found that there was no relation between the quantity of utilizable levulose and the increase of the body weight. The dose of levulose to be administered should be from 25 to 40 grams in children below five years of age and from 40 to 60 grams in children below twelve years of age. The liver generally acts normally in acute infectious diseases. In nephritis and in slow tuberculous processes the function of the liver is disturbed. The phenylhydrazin test is the most delicate for the detection of minute traces of levulose in the urine. Levulose, according to the author, is the substance of choice in the diagnosis of the functional condition of the liver.

Twanoft, F. N. : Diagnostic Value of Palpatory Percussion. (*Ruski Vratch*, Vol. ii., No. 17, p. 634.)

The difficulties besetting ordinary percussion in struggling and screaming children are well-known. They can be largely obviated, according to the author, by employing palpatory percussion, which consists in percussing so lightly as to produce no audible sound. While the ear thus perceives nothing, the peripheral nerve terminations of the fingers distinctly differentiate the sensations obtained and allow us to map out the underlying organs even more exactly than by means of common percussion. In a

series of ingenious experiments the author conclusively demonstrates the ability of the skin to perceive vibrations and even to differentiate their force, pitch, volume, and the character of their combinations. Physicians in general, and particularly those practising among children, will find it much to their advantage to cultivate this skin-sense.

Marfan, A. B.: Chronic Hypertrophy of the Spleen in Hereditary Syphilis. (*Rev. Mens. des Malad. de L'Enf.*, May, 1903, p. 211.)

The following conclusions are drawn from an exhaustive study on the above subject:—

(1) In children we should not consider the spleen hypertrophied unless it is palpable.

(2) In early life, syphilis is by far the most frequent cause of chronic splenic hypertrophy. Syphilitic splenomegaly of children is almost always accompanied by anemia, which is mild or severe. In the latter case it may assume the form of splenic pseudoleukemia. Increase in the volume of the liver and polyadenitis may be associated.

(3) Hypertrophy of the spleen is of great value in the diagnosis of hereditary syphilis. The coexistence of splenomegaly and rachitis does not permit the exclusion of syphilis, for in 2 out of 3 cases certain or probable signs of syphilis can be proven. The same holds true in cases of splenic pseudoleukemia, because in these cases, syphilis can be traced in half the number.

Freund, W.: Cardiospasm, Presumably Hysterical, in a Two-Year-Old Child. (*Monat. f. Kinderhk.*, April, 1903, p. 15.)

The boy had been nursed four months. At the end of that time vomiting followed every change of diet, and persisted in varying intensity throughout all of the second year. At the time of observation no solid food could be taken, and each mouthful of milk was regurgitated as soon as swallowed. A sound was passed, only once, to a depth of 18 cm. and met an obstruction at the level of the cardiac orifice. Milk was withdrawn for two days, and a cure resulted. The child drank from a cup without difficulty and was then put on ordinary mixed diet, with the result that he gained in weight and had no return of the vomiting. The author finds the most rational explanation of the case in the assumption of an hysterical cardiospasm cured by suggestion.

Enuresis was present occasionally, and is to be looked upon, also, as an hysterical manifestation.

Knox, J. H. M. : A Contribution to the Study of the Summer Diarrheas of Infancy. (*Journal of the American Medical Association*, July 18, 1903.)

The writer gives a report of clinical observations on 53 cases of summer diarrhea in infants treated at the Thomas Wilson Sanitarium, in Baltimore, during 1902. From 42 of these cases Bassett and Duvall isolated the Shiga bacillus. These patients included cases of fermental diarrhea, colitis, and chronic indigestion or marasmus. The writer draws the following conclusions from his observations:—

(1) The diarrheal disorders of a large series of children treated in the Thomas Wilson Sanitarium during the summer of 1902 were produced by a bacillus thought to be identical with the *B. dysenteriae* (Shiga).

(2) The cases in this series presented the clinical and pathologic features of the several forms of the summer diarrheas of infancy.

(3) There is good reason for the confidence that a proportion, and probably a large one, of the so-called summer diarrheas of infancy is caused by the *B. dysenteriae* (Shiga).

(4) A confirmation of the work of Duvall and Bassett by establishing the etiology of this yearly epidemic among infants, will make possible the use of more intelligent measures to control and suppress it.

(5) More success can be expected from prophylactic measures and from medicinal and serum therapy than ever before.

Morse, J. L. : Otitis Media in Infancy. (*Journal of the American Medical Association*, July 18, 1903, p. 179.)

A number of cases in which otitis media in an infant was mistaken for some other disease are recorded. Pneumonia, cerebral disease, and malaria, were wrongly diagnosticated in these cases. The occurrence of secondary otitis media and the error of overlooking it or misinterpreting its symptoms are illustrated; secondary otitis media is common in the infants suffering from malnutrition, and the feebler babies show much less reaction than the strong. Such otitis media may even develop and go on to perforation without symptoms.

Carpenter, G.: Splenomegaly in Infants and Young Children. (*British Medical Journal*, August 29, 1903, p. 463.)

During the last few years at the Evelina and Northeastern Hospitals for Children, Carpenter has seen 348 cases in which the spleen was palpable. Of these 57 cases were affected with syphilis, 60 cases had chronic snuffles, and in 30 cases syphilis could not be excluded. In 131 cases the splenomegaly was associated with rickets. Craniotabes was frequently observed with the splenomegaly, but Carpenter finds it most frequent during the first six months, the active syphilitic period, and uncommon during the active rickety period. The presence of craniotabes should excite a strong suspicion of syphilis. Parrot's nodes (cranial osteophytes) the author regards in the same way. The two most important conditions associated with splenomegaly are (1) syphilis, and (2) rickets, and there is (3) an undetermined cause or causes.

Cozzolino, O.: A Case of Atrophic Cirrhosis in a Child (*Societa Italiana di Pediatria*, quoted in *Archiv. di Patol. e Clin. Infant.*, January, 1903.)

The author reports the case of a child aged eight years whose abdomen was considerably enlarged and presented the signs of ascites. The liver-area was greatly diminished in size; there were superficial enlarged veins due to portal stasis. The urine contained uroerythrin, the spleen was enlarged, there was no jaundice, nor any biliary pigments in the urine, and the amount of urea was only eight parts in a thousand. In the discussion Valagussa remarked that he had seen 320 children with malaria and in none was there an atrophic liver, this organ being always enlarged. Fede thought that the case reported might be one of Banti's disease. He had never seen a case of atrophic cirrhosis in a child of that age.

Fede, F.: Two Cases of Toxemic Edema in Children. (*Arch. di Patol. e Clin. Infant.*, January, 1903.)

The author presented two children to the *Societa Italiana di Pediatria* (Naples, December 20, 1902) in whom there was a peculiar edema due, in his opinion, to toxemic causes. One child was one and a half years old, the other three years old. Both showed a general anasarca. On examining the urine, nothing of note was found, and the family history was negative. The chil-

dren had, however, been frequently subject to attacks of digestive disturbances. A liquid diet and the use of purges quickly effected an improvement. The author thinks that the edemas and the intestinal intoxication were connected etiologically, and that the fact that the children were members of the same family showed that there must be an individual predisposition to such edemas of toxemic origin. The mechanism of these edemas is, of course, still but imperfectly understood. Guida thought that these edemas were somewhat analogous to the sclerema of the newly born. The exciting cause in such edemas may be cold.

Cozzolino, O. : Appendical Pain in Children. (*Archiv. di Patol. Clin. Infant.*, January, 1903.)

In a case of lobar pneumonia in a child the author found the typical symptoms of appendicitis. He insists upon the necessity of a careful differential diagnosis in such cases, and recommends the use of gentle pressure over McBurney's point, so as to determine the presence or absence of a tumor in the ileocecal region. Iovane saw a similar case in which the disease was pleurisy.

Coleman, W. S. : Infantile Scurvy. (*The Lancet*, August 15, 1903, p. 443.)

The writer reviews the history of infantile scurvy and discusses the symptoms. Three exceptional cases are mentioned in which hematuria was the chief symptom. With relation to diagnosis scurvy must be distinguished from periostitis, syphilitic epiphysitis, paraplegia or infantile paralysis; and, finally, ulcerative stomatitis. The treatment consists solely in the rectification of the diet. Potato soup, raw meat juice, orange or lemon juice, may be given in addition to the fresh, unboiled milk. With relation to the causation, we cannot yet get beyond Barlow's position that the problem is biological as well as chemical and that the further we get from a living food the less is its antiscorbutic power.

Out of 23 cases of scurvy seen by the writer 19 were taking some kind of patent food, and no less than 7 of them were taking fresh milk at the same time.

Some of the cases of infantile scurvy seen did not improve when fresh milk and orange juice were given, so long as the patent food was continued, but did improve and recover promptly when the preserved food was abandoned.

SURGERY.

Gerassimovitch, W. P.: Surgical Scarlatina. (*Russki Vrach*, Vol. ii., Nos. 17 and 19.)

The peculiar susceptibility of the wounded to scarlet fever is well-known, but the nature of the noxa still remains uncertain. The author analyzes a series of cases and arrives at the following conclusions:—(1) It is now established beyond doubt that wounds, especially operative, predispose the patient to scarlatina. (2) The infection coincides with the time of operation or injury and apparently originates in the wound. (3) The clinical picture of surgical scarlatina is characterized by a shortened incubation and by the absence of typical throat lesions. The eruption begins at the site of the wound, as does also the subsequent desquamation. The course of the affection is usually mild. (4) Scarlet fever stands in the same relationship to wounds and operations as erysipelas and tetanus. (5) Many cases of so-called scarlatinal rashes, following the injection of antitoxin in diphtheria, are in all probability examples of genuine surgical scarlatina.

Cumston, C. G.: Congenital Dislocation of the Shoulder. (*American Journal of the Medical Sciences*, June, 1903, p. 967)

A five-year-old boy, of good family history, came under observation with a lesion of the right arm which had been noticed a few days after birth. There appeared to be impotency of the shoulder-joint, so that the child could not reach his mouth with his hand. The right shoulder had lost its rounded aspect anteriorly, the height of the axilla was diminished and the subclavicular hollow was more accentuated than on the left side. The arm was in very marked internal rotation, the elbow's anterior aspect facing the thoracic wall. Sensation was intact and there were no trophic disturbances. A diagnosis of congenital dislocation of the shoulder-joint was made, and the joint exposed by Phelps' incision. The head of the humerus and the glenoid cavity were but slightly atrophied. After breaking up some adhesions the dislocation was readily reduced, the redundant capsule freely resected and closed with catgut sutures. A plaster dressing was applied for three weeks. The result was very satisfactory. The right hand can be raised to the forehead but not to the top of the head. Backward movements are improved, but not perfect.

Vaughan, G. T.: Volvulus of the Small Intestine; its Relation to Hernia. Torsion of the Entire Mesentery. Report and Résumé of Cases. (*American Journal of the Medical Sciences*, May, 1903, p. 799.)

A predisposing cause is an abnormally long mesentery, which predisposes to rotation. The mesentery may be congenitally long or its length may be increased by traction due to fecal accumulations, adhesions, tumors, hernia or general loss of flesh. Volvulus may occur without elongation, and is not infrequently associated with, and caused by, a hernia. Sixty-one cases were collected, 21 involving the whole mesentery and 40 only a part. Among the former number are included two children aged seven and seven and a half years respectively. Death resulted in both cases. The collected cases of volvulus of a part of the mesentery only, include that of a boy of seven years who recovered after operation, and fatal cases in a child of five years, another of seven days, and another of six years.

Traver, A. H.: Removal of Open Safety-pin from Child's Esophagus. (*American Medicine*, July 11, 1903, p. 53)

A baby, nine months old, swallowed a safety-pin, which was located by the x-ray about half way down the esophagus. The pin was open with the sharp point upward. As it could not be withdrawn, the child was placed upon a table with the x-ray tube beneath it, so that the pin could be plainly seen. With a whale-bone bougie the pin was then pushed into the stomach, the abdomen opened and the pin extracted after gastrotomy. The baby made an excellent recovery.

Valagussa, F.: Modified Intubation Instruments. (*Archiv. di Patol. e Clin. Infant.*, January, 1903.)

Valagussa devised a modified form of intubation apparatus for laryngeal diphtheria. He has a flexible mandrin permanently attached to the introducer which obviates the danger of having the two pieces part, as in the present form. The end of the introducer has an olivlike shape, so as to guide the instrument into the rima glottidis. The handle of the instrument is so constructed that the operator can know at once when the tube has penetrated into the larynx. Finally, a special curve has been given the new instrument in order to adapt it more perfectly to the curve of the guiding finger,

Shurly, B. R.: Prolonged Intubation Tubes. (*Journal of the American Medical Association*, July 11, 1903, p. 80.)

The writer sums up his paper, as follows:—

Cases requiring a tube more than six days should be classified as prolonged. Rubber tubes only should be used. Liberal doses of antitoxin are required in cases due to reinfection or persistence of the membrane. Large doses of strychnin are of value. Smaller or modified tubes coated with alum ointment or alum gelatin should be introduced at each reintubation. The string may be left in place with advantage in many cases. When these measures fail, the "granulation tube" may be used. Tracheotomy is never indicated.

Tubby, A. H.: Is the Urban Hospital Treatment of External or Surgical Tuberculosis Justifiable? (*The Practitioner*, September, 1903, p. 313.)

Comparing the results of the treatment of surgical tuberculosis in children in hospitals in London, and those in the country, the writer finds the advantage distinctly in favor of the latter, and expresses his conclusions in the following form:—

(1) Tubercular children should not be put in hospitals in cities or large towns, but properly-equipped establishments should be started in the country or at the seaside. The increasing means of communication will easily meet the difficulty of the attendance of competent surgical officers.

(2) These hospitals should be devoted to one object only, just in the same way as sanatoria exist for the open-air treatment of phthisis alone. If internal tubercle is treated in special hospitals, why not external?

(3) The rural hospitals must be conducted on definite principles. There should be no limit as to age, the younger children being equally eligible with the older. In fact, the younger the child, the more hopeful is its case, and the more urgent is it to take it in hand at once and thoroughly. Cases once admitted should stay until they are cured, or clearly proved to be incurable; and for the latter separate establishments should be provided, so that they cease to be a danger to the community. Cases which are undergoing cure should not be liable to interruption, owing to the want of subscribers' letters or other red-tapeism, and a case once entered upon must be followed right through.

Hubbard, J. C.: Strangulated Inguinal Hernia and Undescended Testicle. (*American Medicine*, September 5, 1903, p. 390.)

A boy, of fourteen years, had had a small tumor in the inguinal region for a year. He was taken sick with abdominal cramps and tenderness of the tumor. On examination the right testicle was not found in the scrotum, while in the inguinal canal on that side there was a very tender tumor. At operation this was found to be the testicle, while a bit of intestine was found strangulated in the internal ring. The strangulated gut was reduced, the testicle brought down and fastened in the scrotum, and the boy made a good recovery.

Bradford, E. H.: The Resistance of Tissues as a Factor in the Manual Reduction of Congenital Hip Dislocation. (*Boston Medical and Surgical Journal*, September 3, 1903, p. 249.)

The facts presented for consideration may be summarized as follows:—

(1) The resistance offered by the capsule to the correction of congenitally dislocated hips is not more important than that offered by the muscles. (2) The chief resistance to forcible abduction is from the strong tendon of the abductor magnus. (3) The resistance to pulling down the head comes from the hamstring group and the long tendon of the abductor magnus and ilio-tibial band. (4) These resistant tissues can be overcome by small incisions at a distance from the hip. (5) In the lighter cases manual manipulative reduction is sufficient. (6) In resistant cases mechanical force which pulls upon and abducts the limb, arranged so as to also directly act upon the capsule, is of assistance. (7) Where the tendon of the abductor magnus is so strong that an immoderate amount of force is needed in stretching, it would seem advisable to divide the chief resisting tissues, rather than to incur the danger of severely bruising the tissues by the force used. The division of the tendon can be done either before the operation of forcible correction or at the same time.

Connor, F. P.: Intussusception of the Vermiform Appendix. (*The Lancet*, August 29, 1903, p. 600.)

The patient was a boy, nine years old. He was admitted in April, 1903, with vague signs of abdominal disturbance and the history of an injury to the abdomen a month before. All the

symptoms cleared up, with rest in bed, and the patient was discharged. On May 6th he was returned with symptoms of obstruction. At operation an intussusception was discovered and reduced. It was then found that a hard mass, representing the apex, lay inside the ileum. This was discovered to be an invaginated vermiform appendix. All attempts to reduce this failing, the caput coli and appendix were removed together. The boy made a good recovery.

HYGIENE AND THERAPEUTICS.

Josias, Albert: Serum-Therapy of Typhoid Fever in Children. (*La Pédiat. Pratique*, June 1, 1903, p. 25.)

Of 169 cases of typhoid fever in children 24 died, a mortality of 14.2 per cent. Of these 50 were treated with injections of the antityphoid serum of Chantemnesse, with the result that there were only two deaths, a mortality of 4 per cent. It is noted that after each injection a fall in the temperature occurs more or less marked, and dependent in some degree on the early or late stage of the disease. Complications are rare, in fact, they are said to be infrequent under this treatment. The occurrence of periostitis during convalescence, has been treated by local injections of two or three drops of the serum every fifteen days. Success has been marked in some cases.

Van Harlingen, A., and Dillard, Jr., H. K.: Notes on the Employment of Epicarin in Tinea Tonsurans and Tinea Circinata. (*American Journal of the Medical Sciences*, June, 1903, p. 1,012.)

From the use of epicarin in a series of 31 cases the authors conclude that the remedy is an important addition to the means of combating ringworm of the scalp. A tincture of 10 to 20 per cent. strength used after epilation appears to act more rapidly than any of the remedies heretofore employed, in restoring the hairs to a normal condition. In ringworm of the body the tincture seems to be irritating and slow in action. The ointment acts better, but is not equal to the ammoniated mercury ointment, nor to most of the remedies ordinarily employed. In a single case of favus the result of the use of epicarin was such as to encourage trial. In scabies the tincture and simple ointment are apt to prove very

irritating, and are by no means equal to the sulphur and naphthol nor to the other ointments ordinarily employed.

Kerley, C. G. : Management of Catarrhal Pneumonia in Infants. (*Journal of the American Medical Association*, June 20, 1903, p. 1,720.)

The value of fresh air is emphasized. Light clothing is advised. The oiled-silk jacket is discarded, as cumbersome, uncleanly, and overheating. The food, whether in breast-fed or artificially-fed infants, should be reduced one-half or one-third. Care should be taken to keep from disturbing the patient more than is absolutely necessary. Steam inhalations are commended. Counter-irritation is of service. Turpentine, one part to three of oil, briskly rubbed in for a few minutes produces fairly satisfactory counter-irritation, but the home-made mustard paste is preferred. The internal drug treatment should be symptomatic. The use of heavy syrups only burdens the patient. For a child one year of age one one-hundredth of a grain of tartar emetic, and one-fortieth of a grain of ipecac answer the purpose of an expectorant. If the cough is very severe one-fourth of a grain of Dover's powder may be added to each dose. The ammonia salts are rarely used. If sponging or bathing cannot be used for the control of the temperature a combination of caffeine, Dover's powder, and phenacetin may be employed. Heart stimulants are usually necessary. Tincture of strophanthus has served the author best. Strychnin may be used for a soft, easily compressible pulse with a tendency to irregularity. Alcohol is rarely of service. When used, it should be held till the late stages; then it may be given in large amounts. For cyanosis nitroglycerin may be used. Cold packs are the best means of controlling high temperatures. Oxygen is of immense service in very severe cases with restricted breathing space.

Cannon, M. : The Iodoform Treatment of Tuberculous Disease. (*British Medical Journal*, July 11, 1903, p. 77.)

The iodoform emulsion made on Squire's formula was used in the treatment of 2 cases of tuberculous joint disease. About a drachm of the emulsion was injected into the joint every alternate day. At first pain was complained of after the injection and the iodoform was washed out with a weak carbolic acid solution. After a fortnight this procedure was no longer necessary. After

each injection the sinus was covered with a pad of cyanid gauze and then left untouched till the next injection. In both cases the results were very satisfactory, the patients completely recovering.

Barbour, P. F.: Capillary Bronchitis. (*Journal of the American Medical Association*, June 20, 1903, p. 1,718.)

There are two stages in a capillary bronchitis, the symptoms and treatment of which are radically different. The first stage is characterized by lack of secretion and dyspnea, due largely to inflammatory swelling and spasm in the bronchioles. In this stage the inhalation of steam or steam impregnated with various aromatic substances tends to allay spasm and alleviate the dryness. Hot applications, baths and counter irritation serve as derivatives. Hot whiskey relaxes spasm. Nitroglycerin in small doses frequently repeated dilates the bronchioles. Atropin or belladonna, by its sedative action on the reflexes, relieves the urgent dyspnea and, at the same time, stimulates the circulation and respiration. Ipecac not only relaxes the spasm but increases the secretion.

The second stage, on the contrary, is characterized by the increased secretion of mucous and exfoliation of epithelium, with resulting obstruction to the entrance of air. The problem of this stage is to remove the mucus and get air into the lungs. The mucus may be removed by emesis, for which purpose ipecac is most useful. To stimulate the expulsion of mucus strychnin is the best remedy, as it improves the tone of the muscular coat. Opium should not be used.

Taylor, J. M.: Summer Care of Frail Children. (*International Medical Magazine*, July, 1903, p. 407.)

Summer offers the best occasion to accomplish good work with frail children. Some causes of frailty are inherited, some are acquired. Through the vasomotor mechanism many, if not most, of the developmental defects can be corrected. In children lack of vigor, as a rule, indicates a disturbance of nutrition in the segments of the cord whence arises the vascular innervation of the parts or organs below par. Appropriate treatment can best be applied mechanically to the spinal areas through which these parts are reached. If the lungs, or heart, or digestive organs are at fault, prompt attention to these may restore the vigor of the whole

body. The hygiene of the child's life must be considered in detail and any irregularities corrected.

Freeman, R. G.: The Reduction in the Infant Mortality in the City of New York. (*Medical News*, September 5, 1903, p. 433.)

As the result of an exhaustive study of this subject Freeman reaches the following conclusions:—

(1) The infant mortality of all countries is shockingly high and this is shown to be unnecessary by the fact that infants that are well cared for show a very low mortality. (2) The influences that contribute to the high mortality are defective feeding, the active cause, and heat and humidity and bad surroundings as contributory causes. (3) There has been a marked decline in infant mortality during the last ten years in the United States and especially in New York City, due, for the most part, to the decline in mortality from summer diarrhea. (4) This striking decline in infant mortality is due to many agencies. The general adoption of pasteurization and sterilization of milk for infant feeding is by far the most important of these and applies to New York City and the whole of the United States. Other agencies in New York City are the improved city administration, the milk inspection of the Department of Health, the Straus Milk Charity, the fresh air work of St. John's Guild and similar charities, cleaner streets and asphalt pavements, the new small parks, playgrounds and recreation piers, the improved tenements, and the use of diphtheria antitoxin.

McConaghy, A.: Some Suggestions in the Management of Children Predisposed to Phthisis. (*International Medical Magazine*, September, 1903, p. 523.)

The author makes the following suggestions:—

(1) On arising take a glass of hot or cold water. (2) Breathing and other exercises in a well aired room. (3) A regular time for stool immediately after the exercise. (4) Cold bath with vigorous rubbing upward of the body. (5) Play in the sun one hour every day. (6) Encourage proper carriage of body, chest upward and forward, abdomen drawn in, arms hanging loosely. (7) Cultivate habit of deep breathing on the street, and breathe through the nose. (8) Sleep on a hard bed and without a pillow. (9) Limit the child's studies.

Cortright, C. B.: A Case of Atropin Poisoning. (*New York Medical Journal* and *Philadelphia Medical Journal*, September 5, 1903, p. 466.)

A boy, aged eight and one-half years, swallowed two grains of atropin sulphat. One-half hour later he was seen and presented the classic symptoms of atropin poisoning. He was given one-quarter of a grain of morphin sulphat, and the stomach was washed out. High saline enemata, of four pints each with two drams of magnesium sulphat, at 110° F., were given every two hours. He also received one three-hundredth of a grain of strychnin sulphat every three hours, and was surrounded with hot blankets and hot water cans. The boy recovered.

Rudolf, R. D.: The Use of Antitoxin in the Treatment and Prevention of Diphtheria. (*British Medical Journal*, May 9, 1903, p. 1078.)

The writer relates the experience had in the Victoria Hospital for Sick Children of Toronto. In 1901, 100 cases of diphtheria, all proven bacteriologically, were treated with antitoxin with three deaths. From January 1, 1902, to July 7th, 42 cases were similarly treated, with but one death. The hospital has shared the experience of other institutions in respect to frequent outbreaks of diphtheria among the children. The practice of giving every inmate an immunizing dose of diphtheria antitoxin has been followed for some time, with the result that not a single case of diphtheria has developed in the hospital, although bacteriological examinations show that there are always some children who have the bacilli in their throats. The usual immunizing dose of antitoxin is 500 units, but for children under two years 300 units are sufficient.

Guida, T.: Influence of the Milk of Pregnant Women upon the Health of the Nurslings. (*Archiv. di Patol. e Clin. Infant.*, January, 1903.)

It is rare to find in practice that a child that is nursed by a pregnant woman prospers and keeps in good health. As a rule, they are dyspeptic, restless, irritable, pale, sleep little, and do not increase normally in weight. The reason is, that the milk of a pregnant woman is scanty in amount and rich in casein, in other words, there is a marked disproportion between the amount of nitrogenous matter which the child can digest and that furnished him in the milk. There is no reason to assume that there are special substances injurious to the child, which are developed in

the milk of a pregnant woman. This fact has been sufficiently well established by the author, but the reason why nurslings that get milk from pregnant mothers show a rise of temperature is not clear as yet. This milk, if injected into animals, does not cause any pathological effects, but if healthy children are fed on it, they grow ill and feverish. On the other hand, if a baby that has been fed on the milk of a pregnant woman be nursed for a time by a normal woman, it regains its health. The author proved these things many times in his cases. The moral is, that the child should be weaned when the mother becomes pregnant, and that, if possible, the mother should not become pregnant until the child is sufficiently old to be weaned. Even at twelve months, when the breast is given alternately with other food, children do not do well if the mother becomes pregnant while nursing them.

Portillo, José Vieden: The Treatment of Ophthalmia in the Newly Born. (*Archivos de Ginecopat. Obstetr. y Pediatr.*, June 25, 1903.)

Portillo recommends the use of a one in five thousand solution of protargol in the treatment of ophthalmia neonatorum. This solution should be applied twice daily, or, if the inflammatory signs be very intense, the strength may be increased to 2 or even 5 per cent., and the remedy used as an instillation. He devised a new form of irrigating apparatus which elevates the eyelid and allows the complete flushing of the conjunctival sac with these solutions. Solutions of boric acid in warm water may be used in large quantities in this irrigating apparatus several times during the twenty-four hours, in addition to the applications of protargol. A small quantity of a one in two thousand solution of formalin may be added to the irrigation fluid. Several times between the irrigations, or, if need be, every half hour the eyelids should be half-opened, so as to give an opportunity for the escape of pus which bathes the cornea. It is well also, to apply a small amount of vaselin with iodoform 2 per cent. to the edges of the lids by means of a small camel's-hair brush. This prevents the adhesion of the lids and disinfects the eye. The eye should be protected from glaring light but should never be bandaged permanently, as darkness and heat favor suppuration. Applications of silver nitrate, or of bichlorid as caustics during the first stage of the suppuration, are to be absolutely proscribed, and the same is true of bichlorid solutions and of iodoform in powder, which is still often used in this condition.

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Original Communications.

REPORT UPON THE RESULTS WITH DIFFERENT KINDS OF PURE AND IMPURE MILK IN INFANT FEEDING IN TENEMENT HOUSES AND INSTITUTIONS OF NEW YORK CITY: A CLINI- CAL AND BACTERIO- LOGICAL STUDY.*

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The work, of which the following is a report, is a part of an investigation into the production, transportation and feeding of cow's milk in New York City, which was undertaken in the summer of 1901, and which was extended over two years. The entire investigation contemplated an inquiry into the condition of farms such as were supplying milk to New York, the transportation of milk, its condition on delivery and its effect upon the children in tenement houses and institutions.

Observations upon the results of feeding cow's milk to healthy infants in tenement houses were determined upon, since in this way it was believed we could best study the problem under the conditions actually existing, and also avoid those influences met with in institutions which in themselves are so deleterious to infants. For comparison, however, a number of institutions were carefully studied during the summer of 1901.

The purpose of this investigation was to gather some facts upon the following points:—(1) To make a comparison of the results of infant feeding in tenements in winter and summer. (2) To determine how far such results were affected by the character of the milk used, especially its original bacterial content, its preparation, and whether it was fed after heating or raw. (3) To

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May 12, 1903.

see to what extent results were modified by other factors, such as the care the infants received and the surroundings in which they lived.

The clinical observations contained in this report were made by the following persons who were employed by the Rockefeller Institute: Drs. Eli Long, Mary E. Goodwin, Jane Berry, Alma Vedin, Mary Willets and Marie Grund. During the first season, J. S. Mabey was employed by the Institute, but during the second by Mr. Straus. There assisted in the work as volunteers, Drs. J. Sobel, Angenette Parry and Ford. Dr. Sobel reported for two seasons on a group of babies fed from the Good Samaritan Dispensary. To all of these workers the greatest credit is due for the thorough and conscientious way in which they did their work. They were most earnest and painstaking in obtaining as far as possible the facts desired, and much of the value of this report is due to their efforts. The bacteriological investigations were for the most part carried out in the Research Laboratory of the Health Department; but also, to a considerable extent, in the Carnegie Laboratory of the New York University. Drs. Letchworth Smith, Mary E. Goodwin, Katherine R. Collins and Rose A. Bebb carried out this portion of the work.

Observations were made during the summer of 1901, the winter of 1901-2, and the summer of 1902; during each of these seasons the different groups of infants were followed for an average period of about ten weeks. A considerable number were unavoidably lost sight of owing to removal with failure to leave address, and various other causes; but all others who could be kept under observation are included in the report. Excluding all imperfect records and those cases that were observed too short a time to admit of any deductions, there remain 632, of which 98 were observed during the summer of 1901; 211 in the winter of 1901-2; 278 in the summer of 1902, and 45 in the summer of 1903. This special group of 45 is included although the observations were made after the general investigation had closed.

The plan of investigation was that each of the workers should have a group of children, never more than fifty, under personal observation. So far as possible the children were kept under the same general conditions as before. The weights were taken with great care by the physicians, at regular intervals in most cases. Nearly all of the infants were observed in their homes, to which regular visits were made twice a week for the entire period. One

group of about fifty was observed by Dr. Sobel at the Good Samaritan Dispensary to which mothers came daily for the milk for their infants. When necessary one of his assistants went to their homes. In all cases advice was given in regard to matters of hygiene and the general care of the children. It was customary to stop the milk temporarily, whenever acute disturbances of digestion existed.

BACTERIOLOGICAL INVESTIGATION OF THE MILK USED IN FEEDING.

The clinical work was carried on in conjunction with a bacteriological study of the milk used, in order to determine whether any relationship existed between the number and character of the microorganisms in milk, and the amount of diarrheal disease in the children to whom it was fed. Bacterial counts were made once or twice a week from the milk as given to each child. Specimens being taken at times from the raw and at times from the heated milk.

The bacteria were isolated from the milk through plating in a 2 per cent. lactose-litmus-nutrient-gelatin, or agar, and later grown upon the usual identification media. The pathogenic properties of the different bacteria were tested by intraperitoneal and subcutaneous inoculation in guinea pigs with 2 cc. of a 48 hour broth culture, and by feeding young kittens for several days with 3 to 6 cc. daily of a 24 hour broth culture by means of a medicine dropper.

With the characteristics of the bacteria thus determined, they were then separated into classes following as nearly as possible the lines suggested in Chester's Manual of Determinative Bacteriology. Further attempt was then made to identify as many as possible of the varieties with those previously described, using the descriptions of Chester and Migula. With a great many this proved unsatisfactory or impossible because of the incomplete descriptions in literature, or the lack of all description.

The varieties isolated represent only the species present in greatest number in the milk examined, for in no case was more than 0.01 cc. of a milk, and in most highly contaminated milks, only 0.001 cc. used in making a plate, and varieties which occurred in too small numbers to be present in this quantity would necessarily be missed. For the purposes of this article it is not considered desirable to burden the reader with the enumeration of the varieties of bacteria found in the different samples of milk and

their characteristics. Only a brief summary of the results will be given.

From the milks altogether, 239 varieties of bacteria were isolated and studied. These 239 varieties, having some cultural or other differences, were divided into the 31 classes, each class containing from 1 to 39 more or less closely related organisms.

As to the sources of bacteria found in milk, we made sufficient experiments to satisfy us that they came chiefly from outside the udder and milk ducts.

Bacteria were isolated from various materials which under certain conditions might be sources of contamination for the milk, and the cultures compared with those taken from milk. Thus there were obtained from 20 specimens of hay and grass, 31 varieties of bacteria; from 15 specimens of feces, manure and intestinal contents, 28 varieties; from 10 specimens of feed, 17 varieties. Of these 76 varieties there were 26 which resembled closely those from milk, viz.—11 from grass or hay; 26 from manure; 5 from feed.

During the investigation a number of the varieties isolated from milk were shown to be identical with types commonly found in water.

From the few facts quoted above and from many other observations made during the course of the work, it would seem that the term "milk bacteria" assumes a condition which does not exist in fact. The expression would seem to indicate that a few varieties, especially those derived in some way from the cow, are commonly found in milk, which forms having entered the milk while still in the udder, or after its withdrawal, are so well fitted to develop in milk that they overgrow all other varieties.

As a matter of fact, it was found that milk taken from a number of cows, in which almost no outside contamination had occurred, and plated immediately, contained, as a rule, very few bacteria, and these were streptococci, staphylococci and other varieties of bacteria not often found in milk sold in New York City; the temperature at which milk is kept being less suitable for them than for the bacteria which fall into the milk from dust, manure, etc. A number of specimens of fairly fresh market milk averaging 200,000 bacteria per cc. were examined immediately, and again after 12 to 24 hours. In almost every test the three or four predominant varieties of the fresher milk remained as the predominant varieties after the period mentioned.

The above experiments seem to show that organisms which have gained a good percentage in the ordinary commercial milk at time of sale will be likely to hold the same relative place for as long a period as milk is ordinarily kept. After the bacteria pass the 10 or 20 million mark, a change occurs, since the increasing acidity inhibits the growth of some forms before it does that of others. Thus some varieties of the lactic acid bacteria can increase until the acidity is twice as great as that which inhibits the growth of streptococci. Before milk reaches the curdling point, the bacteria have usually reached over a billion to each cc. For the most part specimens of milk from different localities showed a difference in the character of the bacteria present, in the same way that the bacteria from hay, feed, etc., varied. Even the intestinal contents of cows, the bacteriology of which might be expected to show common characteristics contained beside, the predominating colon types, other organisms which differed widely in different species and in different localities. Cleanliness in handling the milk and the temperature at which it had been kept were also found to have had a marked influence on the predominant varieties of bacteria present.

PATHOGENIC PROPERTIES OF THE BACTERIA ISOLATED.

Intraperitoneal injection of 2 cc. of broth or milk cultures of about 40 per cent. of the varieties tested, caused death. Cultures of most of the remainder produced no apparent deleterious effects even when injected in larger amounts. The filtrates of broth cultures of a number of varieties were tested, but only one was obtained in which poisonous products were abundantly present. Death in guinea pigs weighing 300 grams followed within fifteen minutes after an injection of 2 cc.; 1 cc. had little effect.

As bacteria in milk are swallowed and not injected under the skin, it seemed wise to test the effect of feeding them to very young animals. We therefore fed forty-eight hour cultures of 139 varieties of bacteria to kittens of two to ten days of age, by means of a glass tube. The kittens received 5 to 10 cc. daily for from 3 to 7 days. Only one culture produced illness or death. A full report on the identification of the varieties of bacteria met with in this investigation can be found in an article by Dr. Smith in the 1902 Annual Report of the Department of Health.

After two years of effort to discover some relation between special varieties of bacteria found in milk and the health of chil-

dren, the conclusion has been reached that neither through animal tests nor the isolation from the milk of sick infants have we been able to establish such a relation. Pasteurized or "sterilized" milk is rarely kept in New York longer than 36 hours, so that varieties of bacteria which after long standing develop in such milk did not enter into our problem. The harmlessness of cultures given to healthy young kittens does not of course prove that they would be equally harmless in infants. Even if harmless in robust infants, they might be injurious when summer heat and previous disease had lowered the resistance and the digestive power of the subjects.

This failure to discover definite pathogenic bacteria, as well as the numerous varieties of bacteria met with, have forced us to rely on the clinical observation of infants to note what difference, if any, occurred in those fed on raw and pasteurized milk from the same source, and upon different milks of unknown origin varying in the number of bacteria contained. In the following pages, observations upon food are combined with those upon other factors which influenced the health of the infants.

SELECTION OF THE CHILDREN FOR OBSERVATION.

The original aim was to include only infants who were entirely bottle-fed, but it was found that the great majority of all infants in the tenements receive during the first six months occasional breast feedings at night, and nearly all are given some solid food after they are six months old, or as soon as they are able to hold it in their hands. The purpose of the investigation being to obtain relative results with different forms of milk and not absolute results with one form, it is believed that the conclusions reached are not affected by the fact that many of the infants received breast feeding at night. Indeed including such infants has the advantage of studying representatives of a very large class. In each season some infants who were entirely breast-fed were observed for purposes of comparison.

In selecting the children the only conditions made were that they should not be ill or suffering from marasmus when observations were begun, and that they should be of suitable age. Of the entire number 340 were six months old or under, 265 were from seven to twelve months; 47 were a little over twelve months. With the exceptions stated, every child available was included by the physicians until the proper number was made up. The dis-

trict in which most of the children lived was the lower East Side of New York, as densely populated as any part of Manhattan Island.

An unexpected difficulty was encountered in beginning the investigation in the scarcity of bottle-fed infants in the region where the families were selected. One of the physicians reported that in a densely populated neighborhood where every street was swarming with children, hardly half a dozen bottle-fed infants could be found on a block. While this may not have been true of the entire district, it was the observation of all the workers that the proportion of bottle-fed infants in tenement houses was surprisingly small. This is a very different impression from what one gains from visiting dispensaries where great numbers of bottle-fed infants are seen. But the dispensaries draw patients from very large districts and gather the cases that are not doing well, so that the aggregate seems very large. This excess in proportion of the bottle-fed infants at the dispensaries over that in the houses is in itself striking testimony to the advantages of breast feeding.

THE CHARACTER OF THE FOOD EMPLOYED.

It was at first intended to make no change in the food the child was receiving, but it was found necessary in order that observations might also be made upon the comparative effects of heated and unheated milk in summer to place a number of infants upon a modified raw milk provided for them, which was a part of a larger supply distributed to others after pasteurization. This was rendered all the more necessary since it was discovered that during the summer the sterilization of milk in some form was almost universally practiced in the tenements of New York. In the summer of 1902 especially, it was rare to find an infant fed upon raw milk; an incidental testimony to the value of the praiseworthy efforts of the Health Department, and the agitation in the public press in favor of clean milk and the necessity for sterilization in hot weather. When gastro-intestinal disturbance of any severity developed, the infants were deprived of milk for a day or two and put on barley water or other suitable food.

In the district where the observations were made the following forms of milk were extensively used: (1) Condensed milk; (2) Milk purchased at small stores with groceries and other provisions and known as "store milk"; (3) Bottled milk; (4) Milk from central distributing stations, chiefly from the Straus Milk Depots and Good Samaritan Dispensary.

Condensed Milk.—That used was usually bought in cans, *i.e.*, the sweetened variety; seldom were the best brands purchased. It was generally prepared at each feeding by adding hot water which, in most cases, had been boiled.

Store Milk.—This is the poorest grade of milk sold in New York, but varies at the different stores. It is kept in large cans in the small stores and is sold to consumers at an average price of four cents a quart. It averages about 3.75 per cent. of fat. It is customary for milk to be purchased twice a day and it is carried home and kept in pails or pitchers. In summer it is usually heated at once; if it curdles, it is considered to be unfit for use and returned. During the hot days of the summer of 1901, it frequently happened that milk obtained from two or three consecutive stores would curdle. Heating is usually done in a sauce-pan and the temperature is raised to a point where the milk begins to "foam," seldom to boiling point. In most cases it is kept upon ice. It is usually prepared for the infant at each time of feeding. The only modification practiced is, in most cases, dilution with water or barley water, equal parts being as a rule given when infants are about three months old and continued until ten or eleven months, when whole milk is given.

The bacteriological examination made of this milk during the summer of 1901 showed it to contain from 4,000,000 to 200,000,000 microorganisms, an average of about 20,000,000 per cc. The form of heating employed killed, it was found, about 95 to 99 per cent. of the bacteria present. In the summer of 1902, owing partly to the cooler season, but chiefly to the new regulations of the Health Department regarding the care and sale of milk, the average was about 3,000,000 per cc. During the winter the number of bacteria ranged from 100,000 to 5,000,000 bacteria per cc., and averaged about 400,000 per cc.

Bottled Milk.—The greater part of the bottled milk used in these tenements was handled by one of the largest dealers in the city. This milk was produced under conditions which were only fairly good. However, it was so well handled during transportation and delivery that it was nearly always in good condition when received by the consumer. This milk averaged about 500,000 bacteria per cc. It was sold in covered jars at eight cents a quart. The same general plan of modification was practiced as with the store milk, and it was also in summer heated and usually in about the same way. As the people who purchased this were

not so poor as those using the store milk, they were more likely to use ice for keeping it.

Besides this bottled milk some special milk from the Walker-Gordon and Briarcliff Farms was furnished gratuitously to a limited number of cases for the sake of comparison, but this was not widely enough used to admit of drawing conclusions sufficiently definite to be expressed in figures. This milk averaged about 10,000 bacteria per cc.

Milk from Central Distributing Stations.—The greater part of this milk was supplied from the Straus Milk Depots of which there are a number scattered through the city, and from the diet kitchen of the Good Samaritan Dispensary, a small quantity from other diet kitchens. The milk used at these places was generally of excellent quality, usually from an "inspected" or "certified" farm, but it was mixed with poor cream. It was furnished gratis to those too poor to pay, and at a small charge, usually one cent a bottle, to others. This milk after the addition of cream averaged before pasteurization about 2,000,000 bacteria per cc.; after pasteurization, about 500 per cc.; after boiling, about 5 per cc. It is supplied in small bottles, each one containing the quantity for a single feeding. The bottles are washed and sterilized at the central stations. The Straus milk was generally pasteurized; that from the Good Samaritan Dispensary was boiled. With both some attempt at modification was made, three or four standard formulas being used. The common modification consisted in the dilution with boiled water, the addition of lime water, milk sugar, and, in some cases, cream also; or the dilution with barley water and the addition of cane sugar. Regarding the use of these formulas, the quantity for one feeding, and the number of feedings daily, directions were usually given by the physicians in attendance at the Central Stations. As the mothers came daily for their milk, some constant supervision of the cases was thus possible, and many minor disturbances of digestion no doubt controlled by a proper variation in the food.

Infant Foods.—It was a surprise that the proprietary foods were so little used in the tenements, the expense being apparently the chief reason. Although they were given to a number of children observed, they were seldom used for a long time, or as the sole diet, and certainly cut no figure in the results. We have therefore not classified these cases separately.

Breast Feeding.—As already stated, the great majority of in-

infants reared in tenements are breast-fed, at least for the first six months. No effort was made to collect many observations upon these children, but a few were introduced for the sake of comparison. It was thought at first to make a separate division of the children who were partly breast-fed, as it was the impression of some of the physicians who followed the cases that a decided difference existed between those who were partly nursed, usually at night, and those entirely fed. However, the general figures when tabulated did not show any very marked difference. The results seem to have depended rather upon the character of the other food.

In estimating the results obtained by the different methods of feeding two things were considered: first, the gain or loss in weight, and secondly, the amount of digestive disturbance, particularly diarrhea, which occurred in the different groups of infants. The cases have been divided according to results in four groups.

(1) Those which did well. In this group are included the infants who made a substantial and generally a regular gain in weight during the period of observation, this usually amounting to from two to five pounds for the ten or twelve weeks, and those that had no diarrhea worth mentioning—usually both conditions existed together.

(2) Those which did fairly, including those in which some diarrheal disturbance was present, but not of a serious nor prolonged character, and in which the weight was either stationary or the gain very slight. Both these generally went together.

(3) Those which did badly, including those in which considerable digestive disturbance, usually diarrhea, was present, or in which there was a loss in weight; generally here also both factors existed.

(4) The fatal cases.

The following tables show in a condensed form the results obtained with the different foods employed in winter and in summer.

TABLE I. FOOD AND RESULTS.—WINTER.

	Did well.	Did fairly.	Did badly.	Died.	Totals.
Store milk.....	47	6	2	0	55
Condensed milk.....	39	5	2	2	48
Good bottled milk.....	51	13	1	3	68
Milk from Central Distributing Stations	35	20	4	0	59
Best bottled milk	5	0	1	0	6
Breast feeding....	7	1	0	1	9
Totals, excluding cases counted twice.	156	41	8	6	211

TABLE II. FOOD AND RESULTS.—SUMMER.

	Did well.	Did fairly.	Did badly.	Died.	Totals.
Store milk.....	21	23	20	15	79
Condensed milk.....	22	20	14	14	70
Good bottled milk.....	37	23	29	9	98
Milk from Central Distributing Stations	84	33	24	4	145
Best bottled milk.....	9	3	0	0	12
Breast Feeding.....	17	7	7	0	31
Totals, excluding cases counted twice.	184	108	88	41	421

SEASON AND RESULTS.

Nothing could be more striking than the contrast between the results in winter and in summer. The general summary shows that of the 211 winter cases, 156 did well; 41 did fairly, 8 did badly, and 6 died. In other words, what might be considered good results were shown in 93 per cent. of the cases, and bad results in only 7 per cent. Furthermore, in only one of the six deaths was the cause connected with the digestive tract.

Of the 421 summer cases, 184 did well, 108 did fairly, 88 did badly and 41 died. In other words, good results were obtained in 69 per cent. of the cases and bad results in 31 per cent. while in nearly all of the fatal cases death was due to diarrheal diseases. It should be remembered that all the children both winter and summer had the advantage of some continuous intelligent oversight, usually one visit a week and often two being made by the physicians. This supervision contributed in no small degree to the results in both groups of cases.

The difference in results in the summers of 1901 and 1902 was not great; the percentage of bad results in 1901 being 37; in 1902, 35. This may have been due to the slightly cooler season of 1902, or the better general quality of the city's milk. The proportion of children on the different varieties of milk varied somewhat in the two years, so that a strict comparison is difficult.

The showing made by the winter cases is most gratifying and was indeed a surprise to all. So large a percentage of good results by all methods of feeding, and apparently so little difference between them was not expected. Artificial feeding in the tenements in winter would seem to be comparatively a simple problem.

To what shall be ascribed the great difference between summer and winter results? There seem to be many factors, but a consideration of the facts accumulated indicate that heat is the primary factor and bacteria and their products a secondary one,

except when the contamination is extreme or pathogenic organisms are present.

The effect of continued heat upon the health of infants is shown in the number of cases of diarrheal diseases and the number of deaths during the months of the summer of 1901 in an institution in the country near New York City, where a fairly pure milk was fed raw. During the winter and spring there was almost no diarrhea; with the warm weather of June it increased, reaching its highest point in August. The comparative results with the breast and bottle-fed infants are also evident.

Month.	No. of Infants.	Food.	Deaths.
June	34	Breast milk.	0
	25	Cows' milk.	0
	38	Breast and cows' milk.	0
	128*	Milk and barley food.	0
Total..		225	

Number of cases of diarrhea, 15; deaths, 0.

July	32	Breast milk.	0
	20	Cows' milk.	3
	38	Breast and cows' milk.	0
	124*	Milk and barley food.	0
Total..		214	

Cases of diarrhea, 38; total deaths, 3 (all bottle-fed).

August	28	Breast milk.	0
	18	Cows' milk.	3
	32	Breast and cows' milk	4
	120*	Milk and barley food.	2
Total..		207	

Cases of diarrhea, 50; total deaths, 9.

FOOD AND RESULTS.

(1) *Store Milk.*—The largest number of bad results were seen, as was expected, with the cheap store milk, where not only was the milk poorer, but the care at home, less.

The winter observations upon this milk included 55 cases in about half of which some method of partial sterilization was employed; in the remainder it was given raw. Of these 55 infants, 47 did well; 6 did fairly; only 2 did badly and none died. Combining those who did well and those who did fairly, we have what may be considered good results in 96 per cent. of the cases, and bad results in only 4 per cent. There was little apparent differ-

* Those on milk and barley food were all over 12 months old.

ence in results between those taking raw and those taking heated milk.

Store milk was the food of 79 of the summer cases. Of these 21 did well; 23 did fairly; 20 did badly and 15 died; in other words, good results in 56 per cent. of the cases, and bad results in 44 per cent. In nearly all of these cases the milk was heated in some way before feeding; usually it was raised nearly to the boiling point. This had the effect, it was found, of killing about 99 per cent. of the microorganisms present, but the milk still contained after such heating between 5,000 and 500,000 bacteria to the cc. An interesting point of tolerance of such milk was noticed in many cases. A number of infants living in bad surroundings, yet who received fairly good care, took only cheap store milk and yet remained well throughout the entire summer. During 1901 some of the store milk was very bad, averaging on hot days over 100,000,000 bacteria per cc.

(2) *Condensed Milk.*—There were 48 winter observations upon infants taking condensed milk; 39 children did well, 5 did fairly, 2 badly, and 2 died, *i.e.*, good results were seen in 92 per cent. and bad results in 8 per cent. of the cases.

There were 70 summer observations made upon infants taking condensed milk. Only 22 of these children did well, 20 did fairly, 14 badly, and 14 died; or 60 per cent. good results and 40 per cent. bad results.

The results with condensed milk can hardly be attributed to the bacteria, inasmuch as it was almost invariably prepared with boiled water and contained relatively a small number of microorganisms before heating. These children were often apparently in good condition until attacked with acute disease, when they offered but little resistance and seemed to succumb more quickly than any other class of patients. In one family three healthy infants, triplets, five months old, were taken sick on the same day with vomiting and diarrhea; one died within twenty-four hours, one within two days, and the third within a week. A bacteriological examination of the prepared milk remaining in one bottle showed nothing noteworthy.

(3) *Bottled Milk.*—The better results observed with bottled milk should not be put down as entirely due to the character of the food. The people who purchased it were seldom so poor as those buying store milk; they were usually more intelligent and probably more careful in handling the milk. Often they had ice.

There were 68 winter observations on children fed upon bottled milk; of these 51 did well, 13 fairly, only 1 did badly, and 3 died. None of these deaths were due to intestinal disease. In other words, there were good results in 94 per cent. of the cases, and bad results in 6 per cent.

There were 98 summer observations upon infants fed on bottled milk; of these 37 did well, 23 fairly, 29 did badly, and 9 died. In other words, 61 per cent. of good results and 39 per cent. bad results. In these quite a number received the milk raw, but as in the other observations, as soon as any illness occurred, some form of attempt at sterilization was almost invariably practised.

It is interesting to compare these results with those seen with store milk just above them in the table. The percentage mortality with the better grade of milk is only about one-half that seen with either condensed or store milk, and yet the large number of infants who did badly brings the proportion of bad results with bottled milk almost up to that with the two preceding varieties. It was noteworthy, however, that among infants included as doing badly there was on the average less sickness than among those fed on store milk. It would seem therefore that good bottled milk as now used, while much less dangerous to life than cheap store milk, is still, judging by this proportion of failures, rather unsuccessful as a method of feeding.

(4) *Milk from Central Distributing Stations.*—There were 59 winter observations upon these patients, of which 35 did well, 20 fairly, 4 did badly and none died. In other words, good results in 93 per cent. of cases and bad results in 7 per cent.

There were 145 summer observations upon infants fed in this way; of these 84 did well, 33 did fairly, 24 did badly, and 4 died. In other words, 81 per cent. of good results, and 19 per cent. bad results. In about one-half of these cases the milk was pasteurized; in the remainder, with the exception of a group of 42 cases to be mentioned later, in which the milk was given raw, the milk was sterilized.

The great difference between these results and those obtained with the three forms of feeding already considered deserves special attention. The original milk used at the stations was of good quality, but not much better than the bottled milk generally used; with both some form of sterilization was practised. The difference in results is not explained by the difference in these two factors. There were others of importance which must be sought.

A certain amount of constant supervision was exercised over these infants, as some one, usually the mother, came daily to the milk dispensary for the food. Changes could thus be readily made in the milk according to the child's condition. If symptoms of slight indigestion were present, the mother was instructed to dilute the milk; with more severe symptoms, milk was temporarily stopped, etc. This supervision seems to us of the greatest value and can hardly be secured so well in any other way. Again, a mother sufficiently interested in her baby to come or send daily several blocks for the milk is generally one who values what she receives and also the advice which goes with it. This food, obtained in separate bottles for each feeding, is generally regarded by the tenement population as not exactly milk but as something very special, and therefore entitled to much more consideration than any form of food which they could prepare themselves at home.

Another point of importance is that some systematic attempt at milk modification was made in the milk furnished from central stations. Although this could not be done as accurately as for a smaller number of patients, the results were certainly improved by it. Again what contributed, in no small degree to success with this plan of feeding, was that this milk was supplied in separate bottles for each feeding, that the quantity for one feeding was suitable for the child, and that only a proper number of feedings for the twenty-four hours was dispensed at one time. There was not, therefore, the temptation to over-feeding and too frequent feeding, which with other methods are so generally practised. Finally, the bottles in which it was kept were always properly cleansed, and sterilized, since this was attended to at the central station.

(5) *Best Bottled Milk.*—This was furnished to 18 infants living in the tenements, to discover whether any perceptible difference existed between the results with this milk and the other varieties. While these observations are not numerous enough to admit of any generalizations, they indicate what was previously believed, that, with the cleanest milk from the best cared for cattle, the smallest number of bad results occurred.

There were 12 infants placed upon this milk in summer; of these 9 did well, 3 fairly, there were none who did badly and no deaths. There were 6 infants upon this milk in winter, of whom 5 did well and 1 did badly.

The difference between very bad, highly contaminated milk,

like that purchased at some of the small stores previous to 1902 and the best bottled milk, was in some cases very striking. Protracted diarrhea in infants who were taking store milk was often immediately improved and in several cases promptly cured by simply substituting clean milk, after an interval of no milk, for the previous food. In some severe cases, however, no improvement followed the purer milk.

AGE AND RESULTS.

In 17 cases the ages were not recorded. Of the summer cases 217 were infants under six months; 191 were between six and twelve months, and 47 were over twelve months. The comparative results for the different ages are shown in the following table.

TABLE III. AGE AND RESULTS—SUMMER.

Age.	Did well.	Did fairly.	Did badly.	Died.
Under 6 months....	52 per cent.	16 per cent.	19 per cent.	13 per cent.
7 to 12 months....	34 "	32 "	26 "	8 "
Over 12 months....	49 "	32 "	19 "	0 "

Of the winter cases 123 were infants under 6 months, and 74 from 7 to 12 months; none was over 12 months.

TABLE IV. AGE AND RESULTS—WINTER.

Age.	Did well.	Did fairly.	Did badly.	Died.
Under 6 months....	74 per cent.	21 per cent.	0 per cent.	5 per cent.
7 to 12 months....	70 "	20 "	10 "	0 "
Over 12 months....	..	..	..	..

These figures indicate a considerably higher mortality in infants under six months, but a surprisingly large proportion of infants over this age who did badly. In summer, other factors than the milk used must be taken into account, one of the most important being the unwise giving of table food to infants over six months old, a practice which is almost universal in the tenement population. Giving fruits even to infants is also an important cause of illness. This was strikingly seen among the Italians. In this class of the population it was the opinion of some of the physicians who observed these cases, that the use of fruit, often unripe, stale or partly decayed, was the cause of more illness in infants and young children than the impure milk.

A separate study has been made of the cases which did badly, and the fatal cases, to determine any other factors beside the food

and age which contributed to the results. An attempt was made to discover what sort of care these infants received, what their surroundings were, and whether the results in feeding were due to conditions or diseases outside the digestive tract.

CASES DOING BADLY.

There were 96 infants who did badly, *i.e.*, they lost weight during the period of observation and had more or less disease of the digestive tract. Eighty-eight of these were summer cases and 8 were winter cases. *The previous condition* of this group of infants does not throw any special light upon the results. This is noted in 86 of the 96 cases. In 52 the previous condition was put down as "good," and in 30 as "not good." It should be remembered that no infants previously in bad condition were included in the observations. The proportion of "good" and "not good" is about the same as in the children taken as a whole.

Care.—In the 88 summer cases this was not stated in 14; 30 were reported as receiving good care, 20 as having fair care, while 24 were positively neglected. The importance of the care the children received, as affecting the results of infant feeding, cannot be expressed in figures. What is included here as neglect was often of the grossest kind. As for example, where a mother was away all day at work and the infant left in charge of some old man, or irresponsible child, and where the visitor found bottles dirty, nipples rolling about the floor, sour milk in the feeding bottles, etc. It was practically the unanimous opinion of the physicians who made the observations that intelligent care had more to do with the results of feeding than any other factor. Many individual instances were reported of infants living under the worst surroundings and whose food was a very inferior kind of milk, and yet if the mother was intelligent and the infant well cared for, it thrived in spite of the unfavorable conditions. On the other hand if the infant had no proper care it made little difference how good the milk furnished might be, the results were usually bad. One case will serve as an illustration. An Italian child two months old who had an intelligent, careful mother, did well for the entire summer on store milk. The following winter the mother was ill for a long time, during which time the child ran down steadily in spite of the fact that it was older and the weather was cold.

Surroundings.—While surroundings had a distinct influence

upon the results in feeding, they were decidedly of less importance than the care. Since all these infants lived in tenements none could be said to have good surroundings. They were fair in 40 of the summer cases; distinctly bad in 33; in 15 they were not noted. Of the 8 winter cases, 7 had fairly good surroundings. By bad surroundings are meant very crowded apartments, rear tenements or basements. Many infants living in such places were rarely taken into the open air. Where the mothers availed themselves of the opportunities offered for day excursions upon the water and such fresh air as even the crowded city afforded, a distinct improvement was seen in the condition of the children.

Diarrheal Diseases and Other Forms of Acute Illness.—The number of days of diarrhea indicates pretty well the nature of the symptoms from which these infants chiefly suffered. Of the 88 cases which did badly, only 3 had no diarrhea; 19 had diarrhea lasting from one to seven days; 19, diarrhea from eight to fourteen days; 47, diarrhea of more than two weeks' duration. Other complications were present in 11 cases: bronchitis in 5; pertussis in 2; otitis in 1, and pneumonia in 3 cases. Of the 8 winter cases which did badly, none had diarrhea, but three had other complications, viz., one had measles, one bronchitis, and one pertussis.

FATAL CASES.

Of the 632 children observed, 47 or 7.5 per cent. died during the three months of observation. The mortality of the 211 winter cases was 2.8 per cent.; of the 421 summer cases, 11.3 per cent. Of infants under one year, neither in the age nor the previous conditions do we find any sufficient explanation of the fatal result. In the 47 observed who were over one year, no deaths occurred. The care which the fatal cases received is significant. Only 16 of the 47 infants who died received good care, and 19 were recorded as positively neglected. In 21 of the cases the surroundings were bad. The causes of death in the fatal cases were as follows:—

DISEASE.	SUMMER.	WINTER.
Diarrheal diseases.....	32	1
Pneumonia.....	5	2
Tuberculosis.....	2	0
Rickets.....	1	0
Diphtheria.....	1	0
Marasmus.....	0	1
Accident.....	0	1
Unknown.....	0	1
	<hr/> 41	<hr/> 6

The winter case having diarrhea was fed upon good bottled milk sterilized, and had gastric as well as intestinal symptoms. The marasmus case was a child fed upon condensed milk. In only two of the winter deaths could the result be definitely connected with the feeding; while in summer this was true of 30 of the cases.

HEATED MILK VS. RAW MILK FOR INFANTS.

During each of the summers of 1902 and 1903, a special lot of milk was modified at one of the Straus depots for a group of fifty infants, all of whom were under nine months of age, and distributed daily in the usual way. To one-half the infants the milk was given raw; to the other half, pasteurized.

The modified milk was made from a fairly pure milk mixed with ordinary cream. The bacteria contained in the milk numbered on the average 45,000 per cc., in the cream 30,000,000. The modified raw milk taken from the bottles in the morning, averaged 1,200,000 bacteria per cc.; the pasteurized, about 1,000; taken in the late afternoon of the same day, they had respectively about 20,000,000 and 50,000.

Twenty-one predominant varieties of bacteria were isolated from six specimens of this milk collected on different days. The varieties represented the types of bacteria frequently found in milk. The infants were selected during the first week in June, and at first all were placed on pasteurized milk. The fifty infants which had been selected were now separated into two groups as nearly alike as possible. On the fifteenth of June, the milk was distributed without heating to one-half the infants, the other half receiving as before the heated milk. In this way the infants in the two groups received milk of identically the same quality, except for the changes produced by heating to 165° F. for thirty minutes. The infants were observed carefully for three months and medical advice was given when necessary. When severe diarrhea occurred barley water was substituted for milk.

The first season's trial gave the following results. Within one week 20 out of the 27 infants put on the raw milk suffered from moderate or severe diarrhea; while during the same time only 5 cases of moderate, and none of severe diarrhea occurred in those taking pasteurized milk. Within a month 8 of the 27 had to be changed from raw back to heated milk, because of their continued illness; 7 or 25 per cent. did well all summer on raw milk. On the other hand of those receiving the pasteurized milk, 75 per

cent. remained well, or nearly so, all summer, while 25 per cent. had one or more attacks of severe diarrhea. There were no deaths in either group of cases.

During the second summer a similar test was made with 45 infants. Twenty-four were put on raw modified milk; 13 of these had serious diarrhea, in 5 of whom it was so severe that they were put back upon heated milk; 10 took raw milk all summer without bad effects; 2 died, 1 from gross neglect on the part of the mother, the other from diarrhea. Of the 21 on pasteurized milk, 5 had severe attacks of diarrhea, but all were kept on this milk except for short periods, when all food was omitted; 16 did well throughout the summer. One infant, markedly rachitic, died.

The outcome of these observations during the two summers are summarized in the following table:—

Kind of Milk.	Number of Infants.	Remained well for entire summer.	Number having severe or moderate diarrhea.	Average number days off milk during summer.	Average weekly gain in weight.	Average number days diarrhea.	Deaths.
Pasteurized milk, 1,000 to 50,000 bacteria per cc.....	41	31	10	3	4 oz.	3.9	1
Raw milk, 1,200,000 to 20,000,000 bacteria per cc.....	51*	17	33	5.5	3.5 oz.	11.5	2

Although the number of cases was not large, the results, almost identical during the two summers, indicate that even a fairly pure milk when given raw, in hot weather, causes illness in a much larger percentage of cases than the same milk given after pasteurization. A considerable percentage of infants, however, do apparently quite as well on raw as on pasteurized milk.

OBSERVATIONS UPON THE USE OF FEEDING RAW AND HEATED MILK IN OLDER CHILDREN.

The children over three years of age who received unheated milk, containing at different times from 145,000 to 350,000,000 bacteria per cc., showed almost no gastro-intestinal disturbance. The conditions at three institutions will serve as examples.

* Thirteen of the 51 infants on raw milk were transferred before the end of the trial to pasteurized milk because of serious illness. If these infants had been left on raw milk, it is believed by the writers that the comparative results would have been even more unfavorable to raw milk.

In the first of these an average grade of raw milk was used which, during the summer contained from 2,000,000 to 30,000,000 bacteria per cc. This milk was stored in an ice-box until required. It was taken by the children unheated and yet no case of diarrhea of sufficient gravity to send for physician occurred during the entire summer. This institution was an orphan asylum containing 650 children from 3 to 14 years of age; viz.:—3 to 5 years, 98; 5 to 8 years, 162; 8 to 14 years, 390.

A second institution used an unheated but very pure milk which was obtained from its own farm. This milk averaged 50,000 bacteria per cc. The inmates were 70 children of ages ranging from 3 to 14. In this institution not a single case of diarrheal disease of any importance occurred during the summer.

In a third institution an average grade of milk was used which was heated. This milk before heating contained 2,000,000 to 20,000,000 bacteria per cc. The institution was an infant asylum in which there were 126 children between the ages of two and five years. There were no cases of diarrhea during the summer.

These clinical observations taken in connection with the bacteriological examination at the laboratory show that, although the milk may come from healthy cattle and clean farms, and be kept at a temperature not exceeding 60° F., a very great increase in the number of bacteria may occur. Furthermore, this may occur without the accumulation in the milk of sufficient poisonous products or living bacteria to cause appreciable injury in children over three years of age, even when such milk is consumed in considerable amount and for a period extending over several months. Milk kept at temperatures somewhat above 60° F. was not met with in our investigations, but the histories of epidemics of ptomain poisoning teach that such milk may be very poisonous. It is also to be remembered that milk abounding in bacteria on account of its being carelessly handled is also always liable to contain pathogenic organisms derived from human or animal sources.

RESULTS WITH VERY IMPURE MILK HEATED VS. THOSE WITH PURE OR AVERAGE MILK HEATED.

During the summer of 1901, we were able to observe a number of babies fed on milk grossly contaminated by bacteria. In 1902, a systematic oversight of all stores selling milk was instituted by the Health Department, so that the very worst milk was not offered for sale that summer.

TABLE SHOWING THE RESULTS OF FEEDING DURING JULY AND AUGUST, 1901, IN TENEMENT HOUSES, OF 112 BOTTLE-FED INFANTS UNDER 1 YEAR OF AGE, AND OF 47 BOTTLE-FED INFANTS BETWEEN 1 AND 2 YEARS OF AGE WITH MILK FROM DIFFERENT SOURCES, AND THE NUMBER OF BACTERIA PRESENT IN THE MILK.

Character of milk.	INFANTS UNDER ONE YEAR.					INFANTS OVER ONE YEAR.				
	Number of Infants.	Average weekly gain.	Diarrhea.		Deaths.	Number of Infants.	Average weekly gain.	Diarrhea.		Deaths.
			Mild.	Severe.				Mild.	Severe.	
(1) Pure milk boiled and modified at dispensary or stations; given out in small bottles. Milk before boiling averaged 20,000 bacteria per cc.; after boiling 2 per cc.	41	3 oz.	10	8	1*	..	.....	..	..	..
(2) Pure milk, 24 hours old, sent in quart bottles to tenements, heated and modified at home, 20,000-200,000 bacteria per cc. when delivered.	23	4 $\frac{1}{8}$ "	8	5	0	24	4 $\frac{1}{2}$ oz.	8	2	0
(3) Ordinary milk, 36 hours old, from a selected group of farms, kept cool in cans during transport; 1,000,000-25,000,000 bacteria per cc., heated and modified at home before using.	18	4 "	6	6	1†	12	4 "	1	2	0
(4) Cheap milk, 36-60 hours old, from various small stores, derived from various farms, some fairly clean, some very dirty; 400,000-175,000,000 bacteria per cc.	21	$\frac{1}{4}$ "	4	13	4‡	7	$\frac{1}{3}$ "	1	3	0
(5) Condensed milk of different brands. Made up with hot water. As given, contained bacteria from 5,000 to 200,000 per cc.	9	$\frac{1}{4}$ "	5	2	3	4	3 $\frac{7}{8}$ "	1	3	0
(6) Breast milk.	16	2 $\frac{1}{4}$ "	5	2	0					

* This infant died from enteritis and toxemia.

† This infant died of pneumonia. There had been no severe intestinal disorder noted.

‡ One of the four had pertussis, the remaining three died from uncomplicated enteritis.

The observations upon the impure milk of 1901 are of sufficient importance to be given in detail, although already mentioned in this report in the observations upon infants of both summers which were fed on "store milk." A group of over 150 infants was so divided that 20 per cent. were allowed to remain on the cheapest store milk which they were taking at the time. To about the same number was given a pure bottled milk from Briarcliff Farms, sent to their homes free of charge by Mr. Walter W. Law. A third group was fed on the same quality of milk as the second, but sterilized and modified at the Good Samaritan Dispensary. A fourth group received milk from an ordinary dairy farm. This milk was sent to a store in cans and called for by the people. A few infants fed on breast and condensed milk were observed for control.

In estimating the significance of the observations recorded in the tables, one should bear in mind that not only do different infants possess different degrees of resistance to disease, but that, try as hard as the physicians could, it was impossible to divide the infants into groups which secured equal care, and were subjected to exactly the same conditions. It was necessary to have the different groups in somewhat different parts of the city. It thus happened that the infants on the cheap store milk received less home care than the average, and that those on the pure bottled milk lived in the coolest portion of the city. Certain results were, however, so striking that their interpretation is fairly clear. It is to be noted that the number of infants included in each group is small.

There is nothing in the observations to show that fairly fresh milk from healthy cows, living under good hygienic conditions and containing, on some days, when delivered, as many as 200,000 bacteria per cc., had any bacteria or any products due to bacteria that remained deleterious after the milk was heated to near the boiling point.

On the other hand it is possible that certain varieties of bacteria may, under conditions that are unsanitary, find entrance to milk and survive moderate heat or may develop poisonous products resistant to heat in sufficient amount to be harmful, even when they have accumulated to less than 200,000 per cc.

Turning now to the results of feeding with milk which has been heated and which before sterilization contained from 1,000,000 to 25,000,000 bacteria per cc., averaging about 15,000,000,

though obtained from healthy cows living under fairly decent conditions and kept moderately cool in transit, we find a distinct increase in the amount of diarrheal diseases. Though it is probable that the excessive amount of diarrhea in this group of children was due to bacterial changes which were not neutralized by heat or to living bacteria which were not killed, yet it is only fair to consider that the difference was not very great and that the infants of this group were under surroundings not quite as good as those on the purer milk.

Finally, we come in this comparison to the infants who received the cheap store milk pasteurized. This milk had frequently to be returned because it curdled when boiled, and contained, according to the weather, from 4,000,000 to 200,000,000 bacteria per cc. In these infants the worst results were seen. This is shown not only by the death rate, but by the amount and the severity of the diarrheal diseases, and the general appearance of the children as noted by the physicians. Although the average number of bacteria in the milk received by this group is higher than that received by the previous group, the difference in results between this group and the previous one can hardly be explained by the difference in the number of bacteria. The varieties of bacteria met with in this milk were more numerous than in the better milk, but we were unable to prove that they were more dangerous. Probably the higher temperature at which the milk was kept in transit and the longer interval between milking and its use allowed more toxic bacterial products to accumulate.

OBSERVATIONS UPON MILK FEEDING IN INSTITUTIONS.

During the summer of 1901, observations were made by Dr. Long in nearly all the institutions for children situated in New York City. He found, with three exceptions, that no particular care was taken to secure a supply of pure milk. Samples taken from the supply of the other institutions showed that the milk averaged over 1,000,000 bacteria per cc. when delivered, and at half of them it averaged over 10,000,000 per cc. The cream frequently contained 60,000,000 bacteria per cc. The milk at two places contained at times over 100,000,000. At several special hospitals for young children the milk and cream contained on different days from 26,000,000 to 157,000,000 bacteria per cc. Formaldehyd was also occasionally found, especially in the cream. Samples of milk were taken weekly from most of the institutions and

examined as to the number of bacteria and in some cases also as to the varieties present.

As a rule to the children who were over three years old the milk was given raw, while for those under two years it was heated (sterilized.) For those between two and three years, it was sometimes heated, sometimes not. In only two institutions was it possible to trace any epidemic of diarrhea among the infants and older children, and in these, the particulars of which are given below, the results cannot be reasonably attributed to the milk.

The first epidemic of diarrhea occurred at the New York Infant Asylum during June and July, 1901. There were in the institution 86 infants: 30 of these were bottle-fed and 56 were on breast milk. Of the 30 bottle-fed infants, 22 suffered from diarrhea. Of the 56 breast-fed infants, only 7 were affected. The epidemic was mild in character, only 2 infants dying.

This epidemic, which occurred during and after a period of very hot weather, at first glance might be ascribed to the milk. The fact, however, that 7 cases occurred among the breast-fed infants, that the cases occurred from time to time, not simultaneously, and that the milk used had been previously heated, points rather to an infection communicated from the sick to the well than to one conveyed by the milk, unless it was true that the milk had been contaminated in the wards.

In another institution an epidemic of moderately severe diarrhea occurred during the winter, in which at first all the cases came from one ward, and then later from a second ward. In this epidemic, infection through the milk was not conceivable, since the bottle-fed infants in the wards where no illness occurred received milk from the general supply.

GENERAL CONCLUSIONS.

In addition to the statistical reports of their observations, the different physicians who watched the infants in their homes were asked to state their own conclusions regarding the general problem of infant-feeding in the tenements. These general impressions are most suggestive and cannot fail to be of interest to all who are working at this difficult problem.

It was practically the unanimous opinion that the most important factor in securing good results is intelligent care. This covers much: clean bottles and nipples; the willingness and ability to carry out directions as to methods of feeding, quantities, fre-

quency, the stopping of milk at the first signs of serious diarrhea, etc.; proper care of the milk itself while in the house, and methods of sterilizing; suitable clothing and cleanliness of the children, and as much fresh air as possible.

Most of the physicians stated that, leaving out the very worst store milk in summer, the results were much less affected by the character of the milk than they had anticipated, and distinctly less than by the sort of care the infants received.

The surroundings alone had much less influence on results than was anticipated. For not only were breast-fed infants found doing well under the most unfavorable surroundings, but those also who received only the bottle as a rule did well, provided they received intelligent care and good milk.

The depressing effects of great atmospheric heat, *i.e.*, a temperature in the neighborhood of 90° F., or over, were very marked in all infants no matter what their food. Those who were ill were almost invariably made worse, and many who were previously well became ill. A bad method of feeding, or rather a feeding without any method, was responsible for many failures when the milk itself was of good quality. Common mistakes were, feeding an infant every time it cried; giving it a full bottle no matter what the age of the child, and letting it take as much as it would; preparing a large bottle of food at one time, and warming it over from time to time until the child had taken the whole of it, or allowing the milk to turn sour in the feeding bottle. Quantities proper for single feedings were almost invariably disregarded. Proper washing of feeding bottles was seldom seen in a tenement house. Such matters as these are closely connected with intelligent care, which has been already considered.

The importance of the matters just mentioned, raises the question of how much can be accomplished by the distribution of printed slips of directions. It was the observation of the physicians that comparatively little can be accomplished by these alone. Such printed circulars are often treated by the tenement-house mother very much as most of us treat the printed advertisements which are left at our doors—seldom read and soon thrown away. Mothers are often anxious and willing, but ignorant and stupid. Many cannot read and many more have not the wit to apply in practice what they read. When however, such printed advice was preceded or accompanied by personal explanation, it was found of great assistance. Personal contact is the

only sure way to influence these people, and this must be frequently repeated to influence them permanently; as an aid to this, printed slips are useful. Printed directions, however, should be as simple as possible in statement, few in number, and touch only the most vital matters, telling the mother always what she is to do, not what she is not to do.

SUMMARY.

The observations here recorded were made upon the groups of infants for periods of about three months only, and the conclusions drawn relate especially to the more immediate effects of the milk.

(1) During cool weather neither the mortality nor the health of the infants observed in the investigation, was appreciably affected by the kind of milk or by the number of bacteria which it contained. The different grades of milk varied much less in the amount of bacterial contamination in winter than in summer, the store milk averaging only about 750,000 bacteria per cc.

(2) During hot weather when the resistance of the children was lowered, the kind of milk taken influenced both the amount of illness and the mortality; those who took condensed milk and cheap store milk did the worst, and those who received breast milk, pure bottled milk, and modified milk did the best. The effect of bacterial contamination was very marked when the milk was taken without previous heating; but, unless the contamination was very excessive, only slight when heating was employed shortly before feeding.

(3) The number of bacteria which may accumulate before milk becomes noticeably harmful to the average infant in summer, differs with the nature of the bacteria present, the age of the milk, and the temperature at which it has been kept. When milk is taken raw, the fewer the bacteria present the better are the results. Of the usual varieties, over 1,000,000 bacteria per cc. are certainly deleterious to the average infant. However, many infants take such milk without apparently harmful results. Heat above 170° F. (77° C.) not only destroys most of the bacteria present, but, apparently, some of their poisonous products. No harm from the bacteria previously existing in recently heated milk was noticed in these observations unless they had amounted to many millions, but in such numbers they were decidedly deleterious.

(4) When milk of average quality was fed sterilized and raw, those infants who received milk previously heated did, on the average, much better in warm weather than those who received it raw. The difference was so quickly manifest and so marked that there could be no mistaking the meaning of the results. The bacterial content of the milk used in the test was somewhat less than in the average milk of the city.

(5) No special varieties of bacteria were found in unheated milk which seemed to have any special importance in relation to the summer diarrheas of children. The number of varieties was very great, and the kinds of bacteria differed according to the locality from which the milk came. None of the 139 varieties selected as most distinct among those obtained, injured very young kittens when fed in pure cultures. A few cases of acute indigestion were seen immediately following the use of pasteurized milk more than thirty-six hours old. Samples of such milk were found to contain more than 100,000,000 bacteria per cc., mostly spore bearing varieties. The deleterious effects, though striking were not serious nor lasting.

At the present time there is in New York City, no general sale from stores of "pasteurized" or "sterilized" milk, so that it is here very rare for such milk to be used thirty-six hours after heating.

(6) After the first twelve months of life, infants are less and less affected by the bacteria in milk derived from healthy cattle. According to these observations, when the milk had been kept cool the bacteria did not appear to injure the children over three years of age, at any season of the year, unless in very great excess.

(7) Since a large part of the tenement population must purchase its milk from small dealers, at a low price, everything possible should be done by Health Boards to improve the character of the general milk supply of cities by enforcing proper legal restrictions regarding its transportation, delivery, and sale. Sufficient improvements in this respect are entirely feasible in every large city to secure to all a milk which will be wholesome after heating. The general practice of heating milk which has now become a custom among the tenement population of New York is undoubtedly a large factor in the lessened infant mortality during the hot months.

(8) Of the methods of feeding now in vogue that by milk from central distributing stations unquestionably possesses the

most advantages, in that it secures some constant oversight of the child, and since it furnishes the food in such a form that it leaves the mother least to do, it gives her the smallest opportunity of going wrong. This method of feeding is one which deserves to be much more extensively employed, and might, in the absence of private philanthropy, wisely be undertaken by municipalities and continued for the four months from May 15th to September 15th.

(9) The use, for infants, of milk delivered in sealed bottles, should be encouraged whenever this is possible, and its advantages duly explained. Only the purest milk should be taken raw, especially in summer.

(10) Since what is needed most is intelligent care, all possible means should be employed to educate mothers and those caring for infants in proper methods of doing this. This, it is believed, can most effectively be done by the visits of properly qualified trained nurses or women physicians to the homes, supplemented by the use of printed directions.

(11) Bad surroundings, though contributing to bad results in feeding are not the chief factors. It is not, therefore, merely by better housing of the poor in large cities that we will see a great reduction in infant mortality.

(12) The observations indicate that close percentage modification of milk, although desirable in difficult cases, is not necessary to obtain excellent results with the great majority of infants, and that a certain adjustment of a healthy infant to its food is usually soon secured.

(13) While it is true that even in the tenements the results with the best bottle-feeding are nearly as good as average breast-feeding, it is also true that most of the bottle-feeding is at present very badly done, so that as a rule the immense superiority of breast-feeding obtains. This should, therefore, be encouraged by every means, and not discontinued without good and sufficient reasons. The time and money required for artificial feeding if expended by the tenement mother to secure better food and more rest for herself, would often enable her to continue nursing with advantage to her child.

(14) The injurious effects of table food to infants under a year old, and of fruits to all infants and young children in cities, in hot weather, should be much more generally appreciated.

TWO CASES OF GENERAL GONOCOCCAL PERITONITIS IN YOUNG GIRLS UNDER PUBERTY;
ONE SIMULATING APPENDICITIS,
OPERATED.*

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These 2 cases are presented with the hope that they may teach someone else as much as they have taught the writer. Two girls, sisters, aged nine and eleven years, acquired vulvovaginitis, developing one week later into peritonitis. The source of infection was a female in the household with whom each occasionally shared a bed. The girls slept together, and it may be that Case B contracted it from Case A, or that both acquired it from the same source. Their symptoms had the same sequence, those of Case B developing regularly one week behind Case A. Case A showed symptoms referable to the appendix, and was operated upon for appendicitis. Both fully recovered.

CASE A.—GONOCOCCAL VULVOVAGINITIS; PERITONITIS; SUSPECTED APPENDICITIS; LAPAROTOMY; RECOVERY; GIRL, ELEVEN YEARS OLD.

The patient was put to bed for a few days because she was not feeling quite as well as usual. It was then discovered that she had a vaginal discharge. On account of these signs and symptoms a physician was summoned. She seemed to be doing fairly well, under general treatment, with cleansing washes. The condition was such that the physician did not think it necessary to see her the day before, nor did he expect to on the day now to be recorded. She had been ailing one week.

The following is the story of the seventh day:—At eleven o'clock the patient, being as well as on previous days, was placed in an arm-chair on the balcony, to get the air and to be entertained. It was noted, while she was sitting there, that she seemed to be growing tired; she was put back to bed. At one o'clock, the temperature was 103° F. She felt, as it was reported, "sick." She had abdominal pain, vomited once, had fever and great pros-

* Read at the meeting of the Association of American Physicians, Washington, D. C., May 12, 13, and 14, 1903.

tration. The pain was greatest in the right iliac fossa, where she was very sensitive to pressure. The most casual observer would have been struck by her appearance, the death-like pallor and the profound prostration. She was apparently in shock. This latter symptom reminded me of the relaxation, profound prostration, and pallor which I have seen in two infants with intussusception. To very few conditions would Dr. Delafield's favorite and impressive expression, "she looks sick," apply with more force. By three o'clock, the temperature was 104° F. By four o'clock, $104\frac{1}{2}^{\circ}$ F.

To recapitulate, the symptoms were:—abrupt onset, pain in abdomen, tenderness most marked in right iliac fossa, moderate abdominal distention, vomiting once, painful micturition, ghastly pallor, marked prostration, extreme relaxation, temperature $104\frac{1}{2}^{\circ}$ F. It may be remarked that all these adjectives are deservedly strong.

The vulvovaginal discharge was thick, creamy, containing intracellular diplococci, decolorizing by Gram's stain, and pronounced gonococci by Dr. G. A. Tuttle. Dr. George Woolsey, surgeon, was called in consultation. He confirmed the findings above. He noted further, rigidity over the appendix, the size of the palm of one's hand, with acute pain on pressure. No mass was made out. Right rectus muscle was rigid; breathing thoracic. Temperature then was $104\frac{1}{2}^{\circ}$ F. In his opinion, there was beginning general peritonitis, due probably to a lesion of the appendix. Dr. Woolsey performed laparotomy six hours from the time the patient was sitting on the balcony and just beginning to be "drooping" and sick.

The following is a memorandum of the operation and a privileged intra vitam examination of the pathological lesions. The operation was intermuscular: small opening; wound closed. A few drams of straw-colored, clear fluid found deep in the pelvis. The peritoneum was red, the vessels distended in a manner to cause remark by each observer in turn. It was a most striking example of "arborescent injection." The peritoneum seemed just as red as injected vessels could possibly make it; especially was this marked over the cecum. Beyond this extreme injection of vessels, and the few drams of fluid in the pelvic fossa, there was no obvious inflammatory change. It was afterward commented that the membrane was less glistening than usual, a little duller and "sand-papered," though not dry. The appendix was healthy;

the tubes and ovaries were not removed. Though the injection of vessels was noted in all the coils of intestines exposed to view, the injection was most marked on the cecum and colon. These last were blood-red.

This condition of the peritoneum would correspond to the description of cellular peritonitis given by Delafield and Prudden, sixth edition, page 521. It is in abstract as follows:—Incited by an irritant acting not too long and not too energetically, the entire peritoneum may be congested, but there are no exudates and no other obvious lesion. Minute examination, however, shows a very marked change in the mesothelial (endothelial) cells; they are increased in size and number. The new cells coat the surface of the peritoneum, and project outward in little masses.

The patient recovered without incident; vulvovaginal discharge continued three months in all. After more than a year has elapsed, the nurse, who was in attendance, reports the patient entirely well.

CASE B.—GONOCOCCAL VULVOVAGINITIS; GENERAL PERITONITIS,
NOT SIMULATING APPENDICITIS, NOT OPERATED; RECOVERY; GIRL, NINE YEARS.

This patient, a sister of the first, had been sleeping with Case A, and with the female by whom Case A was probably infected. Cases A and B ran much the same course. Vulvovaginal discharge was noted one week after the beginning of discharge, and about the time of beginning of pain in Case A. She was kept in bed and treated by selected diet, attention to bowels, frequent washings with boric acid solution. The discharge was thick, creamy, containing gonococci, decolorizing by Gram's stain (Dr. George A. Tuttle). At the end of one week she was seized with pain in the abdomen, vomiting, painful and frequent micturition; the tenderness and pain referred always to region of the spleen. Pain, sensitiveness, and resistance were over the whole abdomen, but when asked to point to the place of greatest tenderness and pain, she invariably put her finger over the left, upper portion of abdomen. She vomited large quantities, and for many days. Distention slight. The pain was colicky, shifting its location. Everything which increased peristalsis, created rumbling and incited colicky pains. The patient lay much of the time with her knees drawn up, dreading the moment when she must empty her bladder or bowels, putting off these actions just as long as possible. She

would sometimes cry piteously for thirty minutes before she could be induced to use the bedpan. The respiration was rapid and thoracic, both sleeping and waking. The chest was examined repeatedly, to exclude pneumonia or bronchitis. Nothing abnormal was discovered. The general appearance of this little nine-year-old was characteristic. In the first place, she was a pure blonde. In the description of peritonitis by the French writers is mentioned a ghastly pallor with algidity. Our nine-year-old blonde was pale, blue, pinched, her nose, hands and feet cold, her nose and lips thin and pinched, her forehead wrinkled, scowling, her face having an anxious or agonized expression, as though about to whimper. She lay on her side, the knees drawn well up, moaning and whimpering. The sympathetic nurse each day spoke of her growing thinner, more "pinched," noted her ghastly pallor, and added: "She looks positively blue at times." The notes speak daily of pains for seventeen days, and occasionally for a longer period. The temperature was irregular, reaching on one occasion, 102.4° F. For more than one week it varied between 101° and 102° F., and for a second week between 101° and 102° F., and for a third week between 99° and 100° F. Vulvovaginal discharge two months. After more than a year, the nurse reports the case entirely well.

These 2 cases are called here general gonococcal peritonitis. The gonococcus in the discharge was fully established by competent authorities, the 2 cases showing the same, likewise the case from which the two contracted it. The general peritonitis of Case A was established, not only by characteristic outward signs and symptoms, but by operation which allowed of thorough inspection of most of the peritoneal surface. But one proof remains unrepresented. We, in our anxiety to have the operation completed during daylight, omitted to take cultures of fluid found in the peritoneum.

As to the connection between the vulvovaginitis and the peritonitis, the presumption amounts to conviction that the infecting agent was propagated thither by way of uterus and tubes. The tubes were slightly inflamed, but their condition did not call for their removal.

In Case B the diagnosis was based on the experience gained in Case A. The 2 cases were different in but one point—that the pain and greatest tenderness of Case B were referred to the splenic region. After seeing the peritoneal lesion of Case A, there was

no thought of operation. On the same basis, and on comparing these cases with those reported in literature, the prognosis was considered good.

In nearly all recorded cases the sudden onset of peritonitis took up the attention of the physicians, and the vulvovaginal discharge was discovered afterward. Frequently the discharge became scanty the moment peritonitis began, and the discharge was discovered quite by chance. Our cases were in bed from the first on regulated diet and were skillfully nursed. This did not save them from extension of the inflammation.

Abrupt onset characterized both cases. Pain and tenderness, prostration and pallor were most pronounced. There were noted, also, pinched features, anxious expression, algidity, rapid thoracic respiration, painful micturition and defecation. From all recorded French cases and from the two above, one gains the impression that there is something characteristic about the picture of ghastly pallor and algidity, profound prostration and relaxation, which suddenly lays low these young girl patients. They present a picture not easily forgotten:—pinched and blue; pale and relaxed; whimpering and flexed.

Comby has published 8 cases collected from the records of Hôpital Trousseau and Hôpital des Enfants Malades (Paris) which deserve to be abstracted in connection with the 2 above cases.*

COMBY'S EIGHT CASES.

CASE I.—Girl, six years old; scarlet fever; mild course; recovery. Four days after temperature touched normal, vulvovaginitis was discovered. Two days later temperature oscillated between 100.5° and 102° F., with vomiting and abdominal pain, lasting several days. Of this case the writer remarks: "The peritoneum had been only grazed by the gonococcal infection. It is a *peritonism* rather than a peritonitis."

CASE II.—Girl, six years; vulvovaginitis; mild peritonitis; recovery.

After six days of intense vulvovaginitis, abdominal pains, greenish vomiting, anorexia, intense thirst, diarrhea, frequent urination, 101.9° F., soon dropping to 100½° F. The case was mild; onset of peritonitis abrupt; recovery early and rapid.

CASE III.—Girl, eight years; vulvovaginitis, ephemeral peri-

* *Archives de Médecine des Enfants*. Vol. IV., No. 9, p. 513. September, 1901.

toneal attack; recovery. Intense vulvovaginitis; duration not known. Sudden onset; "at eleven o'clock in the morning," complained of pain in the abdomen; at four o'clock temperature was 104° F., followed by copious diarrhea and vomiting. From the following day the temperature began to subside. The pain was more marked in left flank.

CASE IV.—Girl, eleven years old; scarlatina; unrecognized vulvovaginitis; peritonitis; recovery.

Temperature touched nearly 104° F., on four consecutive days, after which it fell. Pains, vomiting. Discharge was discovered after abdominal symptoms began. Infection was thought to have come possibly from use of thermometer or basins.

CASE V.—Girl, four years; vulvovaginitis; peritonitis; recovery.

Sudden onset, sharp pains in lower abdomen, fever; vomited after taking tea; diarrhea copious; abdomen distended and painful. Temperature nearly 104° F. After the following day symptoms began to subside.

CASE VI.—Girl, eleven years; typhoid fever after deferescence; peritonitis very severe; proposed laparotomy; vulvovaginitis; recovery under medical treatment.

About fifteen days after taking first food, the typhoid convalescent was suddenly taken with headache, fever 102.2° F.; vomiting, first of food, then of bile; sharp pains in abdomen. It was at first thought she had taken too much food. On the following day the condition of the child was grave. The pain was constant, not colicky; an exquisite sensitiveness of abdomen to the slightest touch. The child was immobile in dorsal decubitus; the legs flexed on the thighs, the thighs on the trunk. The face was pale, anxious, drawn, nose cold and thin, lips blue, tongue foul and dry, extremities cold and cyanosed. The fever at first 100.2° F., became less on the following days, but the pulse remained rapid, 145 per minute. There was no point of special tenderness, none over McBurney's point, no muscular defense, no induration over appendix.

As to diagnosis: general peritonitis, due to what? Perforation in connection with typhoid fever? It seemed rather late (thirty-two days of convalescence). Appendicitis? The signs of localization were wanting. Pneumococcus peritonitis? That must also be taken into consideration. Just then was discovered a vulvovaginal discharge. It was greenish, staining the linen, abundant.

Gonococcus was verified in the pus. The child's condition was so grave that M. Brun, the surgeon of the hospital, was called. He considered the need of an operation was urgent. This was only deferred to secure the consent of the parents. After two days the temperature had fallen to 99.2° F., pulse 110, no vomiting, abdomen less tense, less painful, general condition better. M. Brun again saw the patient, and no longer advised operation. On the eighth day recovery was assured.

CASE VII.—Girl, six and one-half years; severe peritonitis; preparations for an operation in readiness; vulvovaginitis; recovery.

Malaise, thought to be due to indigestion; vomiting, abdominal pain, most marked in right iliac fossa; passages regular, but scanty. On the fourth day, constipation becoming absolute; generalized pains of whole abdomen. General condition grave; prostration, algidity, cyanosis of extremities, face pale and drawn, temperature 99½° F., pulse small, difficult to count, 140 per minute. Diagnosis—peritonitis; appendicitis eliminated, because of absence of local signs. Vulvovaginal discharge abundant; no gonococcus found in discharge; micturition painful. M. Brun, the surgeon, was consulted as to operation. He advised deferring it, since the patient was near at hand and under close observation. On the fifth day of observation the patient's recovery was assured.

More than five weeks later, the child, while waiting to be sent to the country, a convalescent, was seized suddenly with a second similar abdominal attack; bilious vomiting, pain without localization; abdomen distended, tympanitic, sensitive everywhere; constipation. However, the tongue was moist, the facies normal, no fever, general condition good, pulse 120. For five days of relapse, her condition remained as above. During the five days only two passages, the first diarrheal, the second induced by enema, brought away material hard and mixed with glairy mucus. Recovery followed. It would seem to the writer that this relapse might be considered purely indigestion and constipation, not peritonitis.

CASE VIII.—Girl, six and one-half years; pleurisy; vulvovaginitis; severe peritonitis; recovery.

First symptoms, colicky pains and diarrhea, dorsal decubitus, with relaxation of pressure by flexures of limbs, face pale and anxious, fever 102½° F., pulse 180, abdomen tense, inflated. Pain on examining abdomen, no muscular defense, no dullness, pain not localized.

On the second day, condition more grave, face pale, eyes sunken, dark rings beneath, nose thin, lips pinched and blue, tongue dry and foul, expression of countenance alarming.

Appendicitis was excluded because of absence of all localization. Pneumococcal peritonitis was thought of until it was discovered that there was a purulent vulvovaginal discharge, which stained and stiffened the linen. The discharge was recent and the inciting agent was thought to have been transported on thermometer or basin. Gonococcus was verified; recovery.

ETIOLOGY.

Our cases were nine and eleven years old, no evidence of maturing. Comby's cases were four (the youngest), six, six and one-half, eight, ten, eleven, twelve years. Braquehay reports a case four and one-half years old with laparotomy and recovery. These are the youngest cases found among reports.

Neglected discharges and poor care are considered predisposing causes. Our cases were put to bed at once and in the care of a trained nurse.

Old and recent discharges are followed by peritonitis. In our cases it was just one week from the beginning of the discharge to first pains. These observations are exact.

The gonococcus was identified, by good authority, in three persons in the household. At this day it is not necessary to speak of the connection between gonococcal vulvovaginal discharge and peritonitis. I have in mind the papers of Dr. H. W. Cushing, of Drs. Hunner and Harris.

It would seem that the mucous membranes of vulvovagina and urethra are the most favorable soil offered by the human body for the growth of the gonococcus. For example, the untidiness of the family toilet was marked and in striking contrast with the street and drawing-room appearance of its members. The sheets and nightdresses were stained and stiffened with discharge, in spite of careful directions and forewarning of the danger to others and as to the infection of the patient's own eyes. As it was, four out of five of the immediate family were infected and always and only on the mucous membrane of the vulvovagina and urethra. The only one to escape was the baby, about two years old, who was kept fairly well separated from the others. Furthermore, the infection of the above described cases was from the sheets or per-

sonal contact with a female. It is well to note that there was no question of meddlesomeness of nurse or others.

SYMPTOMS.

"The onset of gonococcal peritonitis is absolutely unforeseen and brutal" (Comby). The discharge may be very little or abundant, old or recent, may be overlooked. There are no prodromes. Pain and vomiting suddenly announce the onset. It simulates acute indigestion. The vomiting is at first of food, later bilious. The pain is sometimes moderate and ephemeral, sometimes excessive and lasting. The whole course of the peritonitis may be in accord, may be short and slight or excessive. The abdomen is sensitive to the slightest touch, yet according to Comby there is not usually a sense of muscular defense, no stiffness of the abdominal wall, no localized pain over McBurney's point. In some cases simple grazing of the abdominal wall calls forth cries and groans. The patient seeks to immobilize her abdomen and relax all muscular pressure. The abdomen may be flat or distended. Constipation is often pronounced; it may be absent; diarrhea may be present (rarely) instead. In our cases the abdomen was slightly distended, stiff and exceedingly sensitive to the slightest touch. Gradual pressure produced less pain than one would expect. However, in Case A, there was no doubt in our minds that there was localized pain and resistance over the appendix. In Case B the severest localized pain was in the splenic region.

In a majority of the cases the temperature abruptly rises to the vicinity of 104° F., after two or three days it drops to 100½ to 102° F., and continues about two weeks. The pulse is rapid and out of proportion to the fever, 140 to 180. The respiration is thoracic and rapid, 30, 43, 48, and once 50 per minute.

GENERAL APPEARANCE OF SEVERE CASES.

Facies.—Face pale, drawn, anxious, even agonized, nose and lips thin and pinched, cold and cyanotic.

Attitude.—Dorsal decubitus; one of our cases lay mostly on her side, knees flexed upon the abdomen. Abdomen distended, stiff, sensitive to slightest touch, and not proportionately so to steadily increasing pressure. Tenderness may be present and localized in right fossa (one of our cases) in splenic region (one of our cases) or in left iliac fossa. (Comby.)

PROGNOSIS.

As to life: a large proportion of cases of general gonococcal peritonitis are benign. Comby's cases and my own make 10, all recovering. Three fatal cases are recorded in young children.

As to the conditions left after recovery from the abdominal lesion. In describing the lesions the authors speak of false membrane, sero-pus and clear fluid in the abdomen. Obviously the surviving peritoneum may absorb clear fluid possibly sero-pus, depending on the amount present and its own abilities to take care of the fluids exuded. The presence of false membranes would suggest probable adhesions. The outcome of this pseudo-membranous inflammation is problematical. Our gynecologists may tell us something. The sterile young married woman may be mentioned in their answer. I find it suggested by some writers that a gonococcal seeding and ripening leaves the soil much as it found it. Others maintain that the result of gonococcal infection of the uterus, tubes and ovaries in young girls, under puberty, interferes with the further development of those organs, resulting probably in permanent sterility.

Comby speaks of the peritoneum being grazed with a gonococcal infection resulting in "peritonisme" rather than peritonitis. Such a condition results in sharp onset, moderate symptoms and ephemeral, subsiding in twenty-four to forty-eight hours. This allows the peritoneum, when there has been no suppuration, to return at once to the normal, recovering its integrity absolutely. Finally, he says, most fittingly and strikingly: "Do not be surprised to see ending rapidly and favorably cases of peritonitis (gonococcal) which have begun in an explosive manner."

With this last sentence I am in full accord, as to Dr. Comby's "peritonisme." I think it well covered by the quotation from Delafield and Prudden under Case A.

DIAGNOSIS.

Appendicitis requires first to be ruled out; it is the most common. Pneumococcus peritonitis must be considered, as well as all forms of septic general peritonitis.

The best suggestion I can make is, when a young girl presents abdominal symptoms, having an explosive beginning, examine for vulvovaginal discharge. If gonococcus is identified, defer operation.

TREATMENT.

There is nothing new to add. The disease tends to recovery. Some, no doubt, require laparotomy. In my cases neither required it. Ice on the abdomen; regular diet; enemata and saline laxatives. Morphine, hypodermically, for excessive pain, or codeia sulphate.

Locally, frequent and effective cleaning and vaginal injections. Thereafter, 1 to 10,000 aqueous solution of bichlorid of mercury; potassium permanganate in aqueous solution. In the French cases "serum" was injected. Whether the serum was an antitoxin is not stated.

Addendum:—There are American cases, notably one by Huber, but they are available to all and add nothing to this particular picture.

Observations on Breast-Feeding, with Especial Reference to Heubner's Quotient of Energy—Beuthner (*Jahrb. f. Kinderhk.*, 1902, p. 446) takes 650 calories as the average worth of a litre of human milk and 670 calories for a litre of cows' milk. He studied three breast-fed infants. They were weighed before and after each feeding. All gained steadily and satisfactorily.

The first infant was six or seven weeks premature. He was breast-fed entirely for seventeen weeks, and then given cows' milk diluted with a cereal decoction in addition, to the end of the twenty-fifth week. The observation was discontinued at this time. He weighed 2,400 gm. at birth and 6,870 gm. at the end of the twenty-fifth week. During the first quarter he averaged 113.1 calories per kilo, and during the second quarter 92.2 calories per kilo.

The second child was born at full term and was studied from the second to the end of the twenty-eighth week. He had breast milk only for twenty-two weeks and then breast milk with a milk mixture. His weight increased from 3,810 gm. to 8,855 gm. During the first quarter the average was 104 calories per kilo, and during the second quarter 76.9 calories per kilo.

The third child was born at full term and was studied from the fourth to the fourteenth weeks inclusive. He had breast milk only and gained from 3,100 gm. to 4,790 gm. During the first quarter of the year he took on an average 103 calories per kilo.

He gives a summary of the cases hitherto studied. The average quotient of energy in these cases was as follows: 1 week, 59 calories; 2 weeks, 100 calories; 4 weeks, 106 calories; 7 weeks, 114 calories; 10 weeks, 104 calories; 14 weeks, 96 calories; 17 weeks, 91 calories; 20 weeks, 85 calories.—*Boston Medical and Surgical Journal*.

LEUCODERMA OF FIVE YEARS' DURATION IN A BOY AGED ELEVEN YEARS.

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William M., aged ten years and eleven months was seen at the Dispensary of the Royal Hospital for Sick Children, Glasgow, first on August 12, 1902, on account of a brown pigmentation of the skin associated with well-defined areas of white. It was in fact a pronounced case of leucoderma which, according to the distinct statement of the mother, began when the child was only a little over six years of age.

The boy was small for his age, his height being three feet, ten inches with a corresponding weight of fifty-five pounds. This was more like a child of seven or eight than a child of almost eleven. His general health, however, was good, and had been since he was seven years old, from which time he had attended school regularly without any interruption on account of illness. In infancy, however, he had measles with "congestion of the lungs" and was very ill. Again when six, he had another severe illness which, judging from the mother's description, was probably scarlet fever. It was marked by sickness, vomiting, fever and delirium. She does not admit there was sore throat or rash but he was ill for about a fortnight and desquamation followed, particularly on the feet. Some months afterwards she noticed the white spots; those first observed were below the right knee in front. She is, however, unable to describe in detail the further progress of the affection.

The following description indicates the condition when the patient was first seen. Speaking generally the skin of the whole body, excepting the palms of the hands, the soles of the feet, and the scalp, was affected. The hair was brown and interspaced with gray but there were no gray patches.

Two distinct features of the affection as a whole attracted attention, viz.: the increased brown pigmentation of the skin generally and the leucodermic patches. With regard to the first it was observed that the skin was browner than normal and that this was more evident in the lower part of the trunk, still more so in the

legs, and particularly so below the knees. The upper part of the trunk, on the other hand, as well as the arms was not so dark, neither was the face, but still here, as elsewhere, the color was darker than normal. These remarks refer to the color of the skin generally in the different parts of the body, but special reference will be made immediately to the increased degree of pigmentation in the immediate neighborhood of the leucodermic patches.

In this description there is no intention of conveying the idea that the pigmentation has anything in it of the nature of that found in Addison's disease. It was not most marked in exposed areas, unless on the legs, nor was it increased in the areolæ or axillæ—or in positions where pressure could be exerted, *e.g.*, the nipples, or round the umbilicus, or in the flexures, or round the waist or over the spinous processes. I refer to this on account of the question already raised as to the possible association of leucoderma with Addison's disease.¹

Reference may now be made to the leucodermic patches. A glance at the reproductions of the photographs (see Figs. I. and II.) illustrating this paper will show in a general way the relative size and distribution of these areas. It will also be observed that they are arranged in a great measure symmetrically, a fact generally observed in these cases. This peculiarity, according to Lesser, is due pre-eminently to the circumstance that the anatomical relations of the skin are perfectly equal in symmetrical regions and hence afford an equal basis to any morbid process affecting them. He does not connect it with the distribution of nerves.² These white areas had well defined margins—margins formed in the case of the larger areas by a series of segments of circles adjoining and having their convexity outwards—a formation evidently the result of the coalescence of smaller circular areas. To the outside of the boundary line the depth of the pigmentation was much greater than it was in the skin beyond, giving the appearance often referred to, as if the pigment had been chased to the margins of the leucodermic patch. As a matter of fact, however, it is not a lateral displacement of the pigment. The pigment is normally formed from the blood coloring matter in the cells of the corium and is transferred by way of the lymph channels (Unna)⁴ or through the agency of special transferring pigment cells (Ehrmann)⁵ to the rete mucosum where it is deposited chiefly in the lower layers. In leuco-

derma, whatever be the reason, the pigment formed in the corium is no longer transferred to the rete mucosum in the immediate neighborhood but to the borders of the leucodermic patch, hence the deepening of color there. The character of the skin in these areas showed no other departure from the normal than loss of



FIG. I.



FIG. II.

PHOTOGRAPHS OF A CASE OF LEUCODERMA IN A BOY ELEVEN YEARS OLD.

pigment. In texture it was like the normal, not cicatricial and parchment-like, as in morphea. It possessed the usual glandular structures and was covered with downy hair which in some areas was quite white. Sensibility was normal, unlike what occurs in nerve leprosy where a certain degree of anesthesia can always be detected.

It is unnecessary to give any further detailed description of

the condition of the skin, it is fairly well depicted in the reproduced photographs.

Apart from the condition just described the boy seemed quite healthy, but as was pointed out he appeared small for his age. He suffered to some extent from nightmare. He had also some rachitic deformity of the thorax so that the liver was pushed down and projected a little below the level of the right costal arch but apart from the latter condition there were no symptoms or signs indicative of any abnormal state of the thoracic or abdominal viscera.

The urine when examined was found to be of acid reaction, having a specific gravity of 1.025 and to contain neither albumin blood nor sugar.

FAMILY HISTORY.—The father and mother married at the ages of twenty and twenty-three years, respectively. Of ten pregnancies, the last resulted in a miscarriage at two or three months. Of nine children born alive five died between the ages of one and three years, all of pulmonary affections, which in two instances were secondary to whooping cough. Of the four living all are well though one has a congenital malformation of the eyes. There is no history of nervous disease obtainable among the blood relations of the parents unless it be that a sister of the father died when very young of "water in the head."

THE ETIOLOGY OF LEUCODERMA is still very obscure but the generally accepted theory is that it is a tropho neurosis and it is in view of this that special reference has been made to the family history. Though we cannot point to very distinct stigmata of nervous disorder yet the family is evidently a weak race and the congenital affection in one child counts for something. Among the exciting causes usually enumerated are some of the specific fevers. Those mentioned by Crocker⁵ are ague, intermittent fever, scarlatina and typhoid fever. It has been pointed out already that there preceded the onset of the leucoderma in this boy a severe illness which was followed by desquamation and which was possibly scarlet fever. In any case it was quite likely to determine the onset of the disease.

With regard to the age of the patient when first seen, he was a month short of eleven years but it is important to note the distinct statement of the mother that the white patches in the skin appeared when the child was only a little over six years of age. The time is pretty accurately fixed for the mother by the illness

which preceded it. At such an age leucoderma is rare. It usually occurs between the ages of ten and thirty years and only very exceptionally before the former age.⁷ McCall Anderson⁸ states that he has not seen it among children though Crocker⁷ refers to a case in a girl at four, and Lesser³ to a case of Näcke⁹ in which the disease began in the fifth year. He refers, also, to another, though without detail, which commenced at the eighth year.

Some importance was attached to the present case, therefore, on account of the age of the patient and, also, because among skin diseases in this country leucoderma at any age is somewhat rare. In this city McCall Anderson⁸ met with only 4 cases among 11,000 consecutive cases of skin disease or 1 per 2,750, though Morton, also of this city, informs me that he has met with the condition among private patients in the proportion of 1 per 410 cases. Kaposi places the proportion at 1 per 1,000 in Vienna; Erasmus Wilson at 1 per 400 in London and Crocker for the same city at about 1 in 660.⁷

The last statistical report of the American Dermatological Association shows the proportion as 1 per 100 in spite of the fact that there is a large Negro population in the United States and the condition is more common among the dark races. Thus Garden gives the proportion as 1 per 36 for India. Knowing the futility of treatment in correcting the irregular distribution of pigment in the skin, nothing was done beyond the administration of general tonics and the improvement of diet and hygienic surroundings as far as possible. The patient belonged to the very humble class, so there was little call made for repeated bleaching or staining of the skin as may be done on the one hand by solutions of peroxid of hydrogen, or perchlorid of mercury, or on the other by such stains as walnut juice.

The mother, however, was assured that improvement would take place in the sense of the condition becoming much less apparent. That really meant that the condition would progress until the skin became nearly all white the result of the coalescence of large leucodermic areas. When this takes place there is often to be observed comparatively small areas deeply pigmented, which are considered to be really the abnormal parts, as in chloasma, while the surrounding white skin is supposed to be normal. Really the reverse is the case and the nature of these pigmented areas can be readily determined by observing that their margins consist of the union of segments of circles the concavity of which

is directed outward toward the abnormal white skin. It is seldom that leucoderma remains stationary.

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Heredity in Syphilis.—R. Matzenauer (*Wien. Klin. Wochenschr.*, February 12, 1903) treats in the first part of his article of hereditary syphilis as acquired from the mother. The portals of infection may be a syphilitic ovum, or through the placental circulation. The fetus may be infected at any stage of gestation as late as the eighth month, but the earlier this occurs the graver the result for the child. Infection before the fifth month usually terminates in abortion, premature labor, death of child, etc., while those infected late may even be apparently healthy at birth. He denies that infection directly through the father has ever been demonstrated, and after opposing the arguments for and against such a possibility, comes to the conclusion that no exception to Colles' law has ever been reported. All the cases for which such an exception is claimed rest upon easily demonstrated errors. Therefore, every mother of a congenitally syphilitic child is without exception immune, because she already has syphilis, if not in a demonstrable, at least in a latent form. There being, therefore, no congenital syphilis from nonluetic mothers, it follows that every such mother, although she may present no symptoms at all, must be given antisyphilitic treatment; she may nurse her child without fear of infection. Syphilitic parents may bring about infection of a previously healthy child. A syphilitic man should, to prevent his wife's infection, undergo repeated courses of treatment during several years.—*American Medicine*.

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HOOK-WORM DISEASE IN CHILDREN.

From time to time our attention has been called to the prevalence, in parts of our country, of infection with a variety of uncinaria. We have before us a copy of the Report Upon the Prevalence and Geographic Distribution of Hook-worm Disease in the United States (Bulletin, No. 10, of the Hygienic Laboratory of the Public Health and Marine Hospital Service), by Ch. Wardell Stiles, Ph.D., chief of the division of zoology. This report is very full and of great interest throughout. It appears that it is only within the past ten years that the occurrence of uncinariasis in this country was recognized, and the rare cases recorded were re-

garded as infections with the parasite familiar in Europe. To Ashford is given the credit of first calling the attention of scientists in this country clearly to the disease.

It was only in May, 1902, that Stiles, working upon material from several different cases, recognized that he was dealing with a new species, which he has named *Uncinaria Americana*. The genus *uncinaria* contains blood-sucking worms of the worst type. They are usually not over an inch in length, nor thicker than an ordinary hatpin. They are provided with a heavy armature of sharp teeth, by means of which they pierce the intestinal mucosa of their host. They have, also, an unusually strong muscular esophagus, which serves as a pump during the act of sucking blood. An important point, from our standpoint, is that they do not remain fastened to one spot, but go from one spot to another, so that the host loses blood not only directly to the parasite, but also from hemorrhage into the intestine. This bleeding is sometimes sufficient in amount to give a characteristic tinge to the stools.

The eggs laid by the female in the intestine of the host will not develop within the body, but are passed unsegmented. In the fecal matter outside the body the eggs develop readily into embryos of about 0.3 mm. length. After the fifth day the embryos undergo certain developmental changes, and pass into a second stage, which represents the end of their extra corporeal life. In this stage they may live as long as thirty days in water. Upon drying up the larvæ die, so that it is improbable that dust infection plays any part in the spread of the disease. Infection usually occurs through the agency of infected food or water, or by the direct conveyance of the microscopic worms to the mouth by dirty hands, etc.

Becoming convinced that uncinariasis must be common in our Southern states, Stiles made a prolonged journey through them to test his conviction. He found ample evidence of the infection in adults and children.

We shall concern ourselves only with the latter. In the

Charleston (South Carolina) Orphan Asylum, from among 230 white children, Stiles selected 20 for further examination, because of anemia, stunted growth, etc. Of these 20 the feces of 15 showed the presence of uncinaria. From 85 children in the Macon, Ga., Orphan Asylum, 17 boys and girls were subjected to closer examination. Of these 17, 12 were shown to be infected. In another orphan asylum, 21 children were selected from 112 inmates, and 17 cases of infection found.

These examples, and other individual cases cited, are quite sufficient to show that the affection must be very common and widespread among children throughout the Southern states. Giles has reported a case in a child of four years; Stiles' youngest patient was three years old. Severe cases of infection are more common in women and children than in men over twenty-five years old.

The symptoms of uncinariasis may be briefly summed up as those of a grave anemia. Apart from the characteristic pallor, there are a stunting of the growth, mental dullness or apathy, protuberant abdomen, transitory edema, etc. Frequently the infected children are known generally as being stupid, dull, or backward in their studies. Again they are frequently kept at home because of their tendency to become edematous, when they sit for any length of time. Since these conditions coincide with the educational period the influence of uncinariasis upon the general intellectual condition in a district where it prevails is marked.

Dirt-eating, which is known to be common among the poorer classes in the South, has been regarded as one of the means of infection. Stiles regards it as more probably only a symptom of an already present infection, akin to the perversions of appetite known to occur in other anemias.

An extensive table of cases at the end of the report shows us that while uncinariasis is most common in the South, it is not unknown in other parts of the country. Cases have been reported from California, Illinois, and even New York. A cursory reading of this report shows one that the subject is of really vast im-

portance to the country, and especially to those interested in the welfare of children. Happily the diagnosis once made, the treatment of the affection by the use of thymol, followed by iron, and other tonics, is usually promptly effective.

CHANGES IN THE EDITORIAL STAFF OF ARCHIVES OF PEDIATRICS.

With this issue of ARCHIVES OF PEDIATRICS Dr. Bovaird severs his connection as associate editor. This is a matter for regret, as Dr. Bovaird, with his intellectual gifts and his knowledge of scientific and clinical medicine, has strengthened the editorial management, and furnished valuable contributions to pediatric literature. To the extensive hospital work to which Dr. Bovaird will devote himself, he will carry the best wishes of the editor and contributors of ARCHIVES with the assurance that the impress of his editorial labor will not be lost.

While expressing regret at Dr. Bovaird's withdrawal from his editorial position, there is satisfaction in announcing that another physician of ability, Dr. L. E. La Fétra, of New York, who has been trained in the special branch of pediatrics, will serve as associate editor. Dr. La Fétra is a member of the American Pediatric Society and is in close touch with the teaching of pediatrics. He will be a welcome addition to the staff of ARCHIVES OF PEDIATRICS.

The Upper Age Limit for the Mechanical Treatment of Congenital Dislocation of the Hip.—Mueller (*Die Therapie der Gegenwart*, February, 1903) reports a case of congenital dislocation of the left hip, in a girl, over fifteen years of age, operated upon by his mechanical method with perfect success. The treatment lasted over one year. Excellent results were also noted in bilateral dislocation of the hip in a girl of fourteen, and great improvement followed the treatment in a woman, twenty-eight years of age, and a man, forty-nine years of age. This treatment by apparatus is, therefore, applicable to individuals much older than is the case with any of the other methods of treating congenital dislocation of the hip.—*Philadelphia Medical Journal*.

Bibliography.

The Practical Medicine Series of Year Books. Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Issued monthly. Under the General Editorial Charge of **Gustavus P. Head, M.D.** Vol. VII. **Pediatrics**, edited by **Isaac A. Abt, M.D.**, and **Orthopedic Surgery**, edited by **John Ridlon, A.M., M.D.** Pp. 232. Illustrated. Chicago: The Book Publishers. June, 1903. Price, \$1.25.

Three-quarters of this volume consists of the abstracts from pediatric literature with notes by the editor, Dr. Abt. The arrangement of this mass of material is well done. Beginning with diseases of the new-born, the sections on dietetics and diseases of the digestive organs are worth perusal, even if the original articles have been read.

This series of year books is intended for the general practitioner, and is issued in a cheap form, but it could be made more attractive by a cleaner printing of the half-tone cuts.

A Thesaurus of Medical Words and Phrases. By **Wilfred M. Barton, M.D.**, and **Walter A. Wells, M.D.** Pp. 534. Philadelphia, New York, London: W. B. Saunders & Co., 1903. Price, \$2.50; with thumb index, \$3.00.

The publishers issue a brief suggestion to the reviewer, and among other claims made for the volume is the following:—"This Thesaurus of medical terms and phrases will be found of inestimable value to all persons who are called upon to state or explain any subject in the technical language of medicine." All of which is true, as the book is full of suggestions for medical writers and speakers. A casual inspection of the volume shows that it could be extended. For example, cow's milk is given the synonym of *lac bovinum*, but modified milk is not mentioned. Again, head nodding is not included in the list descriptive of diseases of the head.

It is a satisfaction to learn that Beigel's disease is *fragilitas pili capitis* and that Rossbach's disease is *gastroxynsis*. The authors have devoted a great deal of study to the synonyms of classic and technical terms and their book should have a place by the side of the medical dictionary.

Society Reports.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, Tuesday, October 13, 1903.

DR. D. J. MILTON MILLER, CHAIRMAN.

THE CHAIRMAN exhibited a case of

ABDOMINAL TUMOR (SARCOMA OF THE KIDNEY?) AND PSEUDO-HERMAPHRODISM IN A CHILD OF TWO YEARS.

The patient was in good health until December, 1902, when the mother first noticed the abdominal swelling, which steadily increased in size, until it reached its present dimensions. Three months before admission to the hospital (August, 1903), a pustular eruption had appeared on the forehead and the trunk. Judging from the character of the pigmentation and the scars, this eruption was of nonspecific nature. The abdomen was greatly distended, the increase in size having been very rapid during the last few weeks. The superficial abdominal veins were very prominent, and a small amount of fluid was present in the peritoneal cavity.

Palpation revealed a large, solid, globular mass, filling the right side of the abdomen and extending from the costal border to the iliac crest; it arose from the right renal region and was regarded as the kidney. The liver was enlarged and pushed to the left, with its lower border on a level with the umbilicus. This enlargement was of recent origin, as it was not noticed on admission. The spleen, which in August was three finger breadths below the costal border, was well below the navel. The child presented an interesting condition of the genitals. The labia majora were much hypertrophied and sparsely covered with coarse hairs. The labia minora were also hypertrophied, and projected from the vulva cleft. The clitoris was enormously enlarged, and presented the appearance of a short, but well-developed penis; being about one inch long, and of the thickness of the male organ of a boy of the same age. The foreskin could be fully retracted, exposing a

well-developed glans, behind the corona of which was an accumulation of smegma. There was no meatus. The remaining external genitals were those of a normal female. The urethra was situated in the vestibule, and at the vaginal outlet there was a bulging hymen. Probes introduced into the urethral and vaginal openings could not be approximated. On catheterizing the urethra, urine flowed freely. Neither testicles nor ovaries could be detected in the hypertrophied labia; nor could the uterus be palpated by rectal examination. With the exception of the vulvar hair, there were no signs of precocious puberty.

The urine contained small amounts of albumin, epithelial cells, and leukocytes; but at no time did it contain blood. On admission, there were 5,650,000 erythrocytes, 15,000 leukocytes, and 75 per cent. of hemoglobin. The differential count was untrustworthy. Subsequent counts did not differ materially from the foregoing. The large number of red cells was probably due to the cyanotic condition of the extremities, that had been more or less constantly present. The child had improved very much while in the hospital, and the general condition was good.

THE CHAIRMAN said that all who had seen the patient, including most of the hospital-staff, regarded the case as one of sarcoma of the kidney; although it had almost reached the usual limit of life of such cases. The enlargement of the liver and the spleen was probably due to secondary involvement of these organs, although it was quite possible that they were merely coincidental. Such enlargements, especially of the spleen, are not uncommon in cachectic states in children.

As to the genital condition, this case, the Chairman said, seemed to be one merely of hypertrophied clitoris. The external genitals were otherwise quite normal. As to the condition of the internal sexual organs, whether one or the other was absent, or was functionally inactive, could be determined only as the child grew older.

DR. JOPSON said that he had had several opportunities to see the case since its admission into the Children's Hospital. When it entered that institution, the growth in the abdomen was apparently chiefly a tumor of the kidney, and was then thought to be a sarcoma. Since that time, the liver and the spleen had both grown greatly; but Dr. Jopson still believed that the condition was sarcoma of the kidney, and that the increase in the size of the liver and the spleen was due to metastasis from these organs.

DR. BERND mentioned a case that had been seen several times at the Polyclinic Hospital a year before, in which there was a large mass in the region of the left kidney, that was evidently increasing in size. This led to a diagnosis of sarcoma of the kidney; but a postmortem examination showed the mass to be tubercular. It was composed chiefly of the thickened omentum, which was rolled up upon itself. There was no sarcoma.

DR. H. B. CARPENTER exhibited a patient with

BILATERAL STENOSIS OF STENO'S DUCT.

He was eleven years old, and was seen on September 1, 1903, with a well-marked case of scurvy. Two months ago, the mother noticed a slight swelling of the cheeks; and the day he was exhibited one could see, externally, and on inspecting the inside of the mouth, cystic swellings, about the size of large almonds. These were considered to be swellings of Steno's duct, probably produced by obstruction of the opening of the duct by the stomatitis, with which the boy has suffered.

DR. JOPSON said that he had seen the patient at Dr. Carpenter's office, and that the condition had become more marked since that time. The case was, he thought, a very unusual one. It was difficult to find any other explanation for it than that given by Dr. Carpenter.

DR. ESHNER asked whether there was any evidence of calculus.

DR. CARPENTER replied that none could be found.

DR. CARPENTER also exhibited a

CHILD WITH INTERESTING HEART SIGNS.

The patient was a girl eight years old. She had been healthy until the age of two years, when she had an attack of diarrhea. After this, she remained well until her fourth year, when she had scarlet fever; and since then, she had had rheumatism. Eighteen months ago, the mother noticed that the child was short of breath, and that her lips and nails were blue. She now had a severe cough, and there was visible pulsation from the clavicles to the sixth interspace, and almost from one axilla to the other. The apex was in the sixth interspace, nipple line. Dullness extended one inch outside the nipple line on the left side, and almost to the nipple line on the right. There was a very loud diastolic murmur

at the aortic cartilage, and a faint systolic murmur. There was also a systolic murmur at the apex, transmitted to the back; and a presystolic murmur was heard to the right of the sternum. A double murmur was heard at the ensiform cartilage.

DR. ESHNER said that the disproportion between the marked signs and the slight symptoms was striking. The child had the physical evidences of a double aortic lesion, with mitral regurgitation and marked dilatation; yet she seemed comfortable, and had little or no dyspnea and no other signs of cardiac incompetence.

DR. J. H. MCKEE said that he had been impressed with the loudness of the diastolic murmur. This murmur was apparently due to aortic regurgitation; yet it was extremely loud, and was heard with the utmost ease. Aortic regurgitant murmurs were likely to be very soft and were often heard with difficulty. Usually the absence of the valvular click at the aortic cartilage leads one to search for them. Dr. McKee asked whether the child exhibited any vascular signs of aortic regurgitation.

THE CHAIRMAN asked whether Dr. Carpenter would state his own views as to the diagnosis of the heart lesion.

DR. CARPENTER replied that he considered the child to have double aortic and double mitral disease, and, at times, at least, to be subject to tricuspid regurgitation.

DR. I. VALENTINE LEVI read a paper on

CONGENITAL DILATATION OF THE COLON.

He said that little was known of the nature of this condition, its pathology in most cases being obscure. Various theories had been advanced, and they materially differed. Treatment was only palliative, as the condition was considered incurable, although a cure after operation had been reported. The case reported by Dr. Levi was as follows:—The patient, P. J., was a boy, four years of age. He was breast-fed for a few months, and then received condensed milk. He had pertussis at the age of four months, followed by enlargement of the abdomen and constipation. When seen, there was no vomiting. The appetite was good, and there was no sign of rickets. The abdomen at the level of the umbilicus measured twenty-six and one-half inches. The patient remained under observation for fourteen months. The principal points in the case were : (1) Enlargement of the abdomen; (2) obstinate constipa-

tion; (3) diastasis of the recti; (4) tympany, at times replaced by dullness; (5) dilatation and downward displacement of the stomach and the transverse colon; (6) visible peristalsis; (7) emaciation. The patient improved considerably under treatment, which was directed to building up the muscular tone of the intestine and overcoming constipation. Electricity, strychnin, eserin, and normal salt enemata were employed. The movable dullness was explained by fecal impaction and the motility of the intestines. It was suggested that the lessening of the intraabdominal pressure, due to the separation of the recti (which was also probably congenital), combined with the constipation (which is very common in children, especially in those that are artificially fed), might account for the dilatation of the colon.

DR. MCKEE asked whether, as was often the case in this condition, the periods of constipation had been followed by the expulsion of foul, liquid stools. He also asked whether any rectal examination under anesthesia had been made. He drew attention to the fact that in conditions of this kind stenosis of the rectum had been found in some instances, and that this had apparently explained the occurrence of dilatation of the colon. Dr. McKee did not feel convinced that cases with an evident anatomical lesion, such as rectal stenosis, should be considered to belong to a class separate from those in which no distinct lesion can be found.

DR. EDSALL mentioned a case that he had exhibited to the Society several years before, the child having been observed in St. Christopher's Hospital. She was admitted with an enormous distension of the abdomen, evidently due to dilatation of the bowel. After the bowel had been thoroughly cleared out with an enema, and some subsidence of the distension had taken place, it could be determined, by inflation per rectum, that the sigmoid described a wide, sweeping curve, running over to the right iliac fossa, and then making a sharp turn toward the left side of the pelvis. In that case this anomalous extent and course of the bowel had apparently been the cause of the dilatation; for at the point at which the bowel made the sharp turn, feces collected whenever there was a tendency to constipation, and caused the upper arm of the bowel-loop to sag upon the lower arm of the loop, thus producing practically a stenosis of the bowel. This had been going on for several years without any adequate relief; but, after the continued use of high enemata, keeping the bowel thoroughly washed out, and

administering strychnia in large doses, to increase the tone of the intestinal musculature and of the muscles of the abdominal wall, the dilatation of the colon subsided so rapidly that at the end of about a month the child's abdomen was only slightly distended. After this time, occasional flushings of the colon and the constant controlling of constipation resulted in an entire cure, as long as the case was followed, which was for about a year.

Shortly after this case had been reported, Göppert contributed an extensive discussion of dilatation of the colon in early childhood, making an especial point of an anomalous course of the sigmoid as the cause of the condition. As Dr. Levi had mentioned that his case had exhibited decided enteroptosis, Dr. Edsall asked Dr. Levi whether he did not consider it possible that the anomalous position of the bowel had been active in causing the condition. Dr. Edsall thought this condition to be especially worth looking for; because, as demonstrated by the case mentioned by him, it was sometimes subject to such control that the patient might be practically cured. Dr. Edsall had observed a number of cases, in children and in adults, in which, he felt confident, occasional attacks of prolonged and obstinate constipation, sometimes associated with a great deal of temporary distension, were due to this condition.

DR. LEVI, in reply to Dr. McKee, said that the child had at times passed many loose and foul stools after attacks of constipation. He had not made a digital examination of the rectum. He thought, however, that there was no rectal stenosis; because a large rectal tube could be passed high into the rectum, with the utmost readiness. The child undoubtedly exhibited marked enteroptosis; but Dr. Levi could not state whether the condition mentioned by Dr. Edsall was present or not, or whether it had had anything to do with the production of the dilatation.

DR. JOHN H. JOPSON reported a case of

SUBDIAPHRAGMATIC ABSCESS IN A MALE INFANT, FIFTEEN
MONTHS OLD.

The etiology was unknown. The child had recently been treated for bronchitis and indigestion. When first seen by Dr. Jopson, the abscess had already burrowed through the diaphragm, the pleura, and the intercostal muscles of the ninth intercostal space in the axillary line. It presented a large swelling in this region, due to

a secondary collection outside the chest-wall. The nature of the abscess was not suspected until it had been opened, and the primary abscess had been discovered by the exploring finger. The patient recovered under simple drainage, rib-resection not being necessary. The pleural cavity was not infected. An analysis of the statistics in Mayo's article on subphrenic abscess showed 5.9 per cent. of cases in children under fifteen years of age, but a study of 68 cases, reported since the appearance of that article, gave a higher percentage of children. The affection was, however, proportionately less common in children. Children were susceptible to nearly all the lesions that cause subphrenic abscess in adults; but, while in the latter, lesions of the stomach and the duodenum were the most common cause, appendicitis was the most frequent cause in early life. The prognosis without operation was bad; with operation, it was fairly good. It was better in children than in adults; this was mainly owing to the difference in the etiology.

The Removal of a Sunflower Seed from the Throat. A Contribution to the Study of Foreign Bodies in the Respiratory Passages.—A. M. Orwsky (*Chirurgia*, February) has collected 4,381 cases of foreign bodies in the respiratory passages, and cites a number of interesting cases from literature. As regards the frequency with which foreign bodies are arrested in various portions of the respiratory tract, Bourdillot, out of 115 cases, found 35 cases of foreign bodies in the larynx, 80 in the bronchi, 26 in the right bronchus, and 15 in the left. In the case here reported the patient was a boy, aged two years, who was admitted with marked difficulty of respiration. Three days previously he had been eating sunflower seeds, when suddenly he began to cough, to breathe with difficulty, and to speak hoarsely. Ipecac was given to produce the expulsion of the foreign body by vomiting, but without success. High tracheotomy was performed, and a small curette failed to dislodge any foreign body from the larynx. A sudden access of cough, however, ejected the sunflower seed from the wound. A tracheotomy tube was introduced and inhalations of soda solutions were prescribed. The patient continued to cough for some time but made a good recovery.—*New York Medical Journal*.

Current Literature.

--- PATHOLOGY.

Class, W. J. : *Diplococcus Scarlatinæ*. (*Medicine*, July, 1903, p. 525.)

The author describes his diplococcus and the method of finding it.

The diplococcus scarlatinæ as seen in primary cultures usually appears as a very large diplococcus, at least four times as large as an ordinary staphylococcus. This form occurs in about 90 per cent. of the cultures if made early in the disease, and can as a rule be easily differentiated from other large cocci. The following may, however, occur: A culture is made upon blood serum from the throat of a patient having typical scarlet fever. This culture is placed in an incubator and examined after twelve or twenty-four hours, and no large diplococci are seen; the field apparently consisting of nothing but small staphylococci, with perhaps here and there a streptococcus. This has occurred to him a number of times, and he has reported that the germ was absent. These apparently negative results were due to one of two things: either to the change of form to which this germ is especially prone, as he has repeatedly pointed out in previous articles, or else to the fact that it did not take the stain and so escaped recognition. To obviate this latter difficulty it is necessary to study the field very carefully, when the outlines of the large unstained diplococci, which are usually found in small clumps, can be made out. The first mentioned difficulty will seldom occur if his earth agar is used; should such be the case, however, the culture is to be transplanted and a subculture made, which will as a rule show the large cocci, although sometimes several transplantations are necessary. It is also a good plan when the primary culture fails to show the typical diplococcus to isolate the germs composing the culture by means of the plate method, when the cultural characteristics of the organism, such as its glutinous character and the fact that it does not affect milk in its growth, will prove a great aid in its recognition. Of course these latter methods require time and technical knowledge. Simple transplantation will usually suffice. It should be borne in mind that the best results are obtained when

the culture is taken early, before antiseptics have been used or before the other germs present in the throat have had a chance to multiply and outgrow the diplococcus scarlatinæ.

The author is more than ever convinced that this diplococcus is the cause of scarlatina.

Guthrie, L. A. : On the Fatal Effects of Chloroform on Children Suffering from a Peculiar Condition of Fatty Liver. (*The Lancet*, July 4, 1903.)

Nine years ago the author published a series of 9 cases in which death occurred within from ten hours to six days after operations performed under chloroform.

The conclusions drawn as to the cause of death were:—(1) that these deaths, in all but cases 9 and 10, were due to auto-intoxication; (2) that a fatty condition of the liver, and therefore functional disturbance of that organ, existed before the operations; and (3) that chloroform and operation shock combined aggravated the condition already present (fatty liver) and thus loaded the system with toxic alkaloids which the kidneys (notably in cases 6 and 7, in which pyelitis and slight interstitial nephritis were found) were unable to eliminate.

His conclusions were not accepted, and the deaths were explained as due either to carbolic acid poisoning or fat embolism. The author now reports 4 more cases, of which he says:—

The additional cases seem to prove the following: (1) That neither carbolic acid poisoning nor fat embolism will account for these mysterious fatalities. (2) That the severity of the operations has little if anything to do with the cause of death. (3) That the only pathological condition commonly found after death is a peculiarly intense fatty degeneration or fatty infiltration of the liver. This condition was found in five of the first series and in three of the second series of cases. It was not noted in three of the first series, but in these a microscopical examination was not made. Of the remaining three one recovered and in two permission for a postmortem examination was refused. (4) The only other circumstance common to all the cases was that chloroform had been administered some hours or days before death. We are therefore driven to seek an explanation in the morbid state of the liver which was demonstrated in 8 out of 14 cases and can therefore not be regarded as a pure coincidence and also to inquire again what part (if any) was taken by chloroform in producing it.

The condition of the liver is described as a fatty degeneration, the fat appearing especially in the periphery of the lobules.

Flamini, M.: Cytodiagnoses in the Cerebrospinal Liquid.
(*Riv. di Clin. Pediatr.*, June, 1903.)

All cases examined may be divided into three groups:—(1) Those in which the polynuclear leukocytes predominated in the cerebrospinal fluid; (2) those in which the same was true of the lymphocytes, and (3) those in which the microscopical examination was completely, or almost completely, negative.

In the majority of the tuberculous meningitis cases, the lymphocytes predominated, especially in those in which the bacillus of Koch was absent in the liquid. In the so-called toxic meningitis cases, without any germs in the liquid, in a case of retrobulbar acute meningitis, in a case of acute meningo-myelitis, and in 2 cases of hydrocephalus of which one was of syphilitic origin, there was a predominance of lymphocytes. On the other hand, in diplococcic meningitis, in tuberculous meningitis, in which there was a noteworthy number of tubercle bacilli in the liquid, there was a prevalence of polynuclear leukocytes. The same held good for a case of solitary tubercles on the cerebral meninges. The cytological examination was negative in a case of so-called meningitis, and in cases of chorea, of Little's disease, and of tetany. In all cases the reticulum of the sediment was examined. In some cases also, a centrifuged specimen. The lymphocytes seemed, therefore, to predominate in all cases in which the disease was not caused by germs (toxic forms) or in which the germs were very few in number and could not have a very important influence. In the cases in which the polynuclears predominated, there were germs found in the liquid in large numbers; in other words, these cases were chiefly bacterial in origin, while the other group included chiefly toxic conditions. It appears, therefore, that there is a correspondence between the cytology and the bacteriology of a cephalorachidian fluid. The polynuclears are evidently means of defense attracted by the germs, while the lymphocytes are attracted by the toxins. These conclusions tally with the results of investigations as to the cytology of the cerebrospinal fluid in tabes, in general paresis, in syphilitic myelitis, etc., affections which are supposed to be toxic. As both lymphocytes or polynuclears may predominate in tuberculous meningitis, according to the number of germs, the cytodagnostic method is of not much value in differentiating tuberculous from other forms of meningitis.

MEDICINE.

Dillingham, F. H.: *Rubella*. (*American Medicine*, August 15, 1903, p. 263.)

The author thinks that there is no doubt of the existence of a contagious disease resembling both measles and scarlet fever yet distinct from both. Instances illustrating the difficulty of diagnosis are given in detail. The disease is infectious, but is much less contagious than measles. No age is exempt, but the disease is most frequently seen between the ages of four and sixteen years. It is not usually seen in infants. The period of incubation is the most variable of any of the acute exanthemata. In the writer's experience it has been from fourteen to eighteen days. The stage of invasion is usually very short, and often the eruption is the first thing noticed. Complications are rare, but sometimes pneumonia, bronchitis, and nephritis develop.

Haven, A. C.: *A Study of a Scarlet Fever Epidemic*. (*Medical Record*, August 22, 1903, p. 292.)

In November, 1902, the first case of scarlet fever developed in Lake Forest, Ill. Two or 3 cases per month were reported till February, 1903, when 10 per week, and one week 15 appeared. Despite the most rigorous measures the epidemic lasted six months and affected a total of 108 people in a population of 2,400. An unusual number of sore throats was noted early in the epidemic, and it became evident that these sore throats were cases of scarlet fever without other manifestations of the disease. The writer regards these cases as the means of maintaining the epidemic and spreading the disease, because they often did not come under observation. Another peculiar feature of the epidemic was the number of young adult cases.

Rotch, T. M.: *Infantile Scorbutus*. (*Medical News*, September 12, 1903, p. 481.)

A boy, ten months old, was admitted to the Children's Hospital, for a swelling of the right leg from knee to ankle. The swelling was hard, tense, and tender. The skin over it was glazed, but there was no fluctuation. The rectal temperature was 101° F. There was a leukocytosis of 19,200. Three operations were done, at one of which the entire shaft of the tibia came away in two pieces. Rotch then saw the case, suggested infantile scorbutus and prescribed orange juice, with the result of steady improvement in the condition.

A second case, that of a boy of nine months, is narrated, in which there was a swelling of the right thigh so hard that it suggested the presence of an osteosarcoma. That diagnosis had been made and an amputation suggested by one physician who saw the case. The child recovered on appropriate treatment.

MacAdam, H. G.: Purpura Hemorrhagica Fulminans. (*Medical Record*, August 22, 1903.)

Mary D., aged five years, had had scarlet fever, but otherwise had always been well; was considered robust. One morning her mother noticed that she was drowsy and heavy. In the afternoon three black and blue spots appeared on her forehead. When first seen she was bright, rosy-cheeked, playing about the room. The body was covered with petechiæ. One-half hour later the child was almost moribund from hemorrhages from the nose, stomach, lungs, bowels, and kidneys. She was sent to a hospital, where she was given adrenalin, ten minims every three hours, in orange juice. The child made a gradual recovery. The treatment is believed to represent a new application of adrenalin.

Griffith, J. P. C.: Pneumonia and Pleurisy in Early Life Simulating Appendicitis. (*Journal of the American Medical Association*, August 29, 1903, p. 531.)

A series of cases are narrated in which the symptoms of appendicitis were presented, but in which the real affection was a pneumonia or pleurisy. The writer sums up as follows:—

There is, especially in early life, a well-recognized, long-known, but frequently forgotten, tendency for patients with pneumonia or pleurisy to refer to the abdomen the pain really produced in the chest. This is more liable to happen when the disease is situated in the lower part of the thorax, but there is reason to believe that it may also occur when it has attacked the upper portion. It is also more deceptive when the right side of the thorax is affected, since the right side of the abdomen is then liable to exhibit pain, and the presence of appendicitis is suggested. Combined with the abdominal pain in these cases there is also constipation and abdominal tenderness and distension. These symptoms, together with the vomiting which quite commonly ushers in an attack of pneumonia in childhood, easily produce a clinical picture very closely simulating that of appendicitis.

The distinction is to be made by giving due consideration to

(1) the sudden rise of temperature to 103° F. or thereabouts, and the tendency to maintain this degree; (2) the acceleration of respiration, which is out of proportion to the pulse rate or the pyrexia; (3) the relaxation of the abdominal walls between the respirations; (4) the diminution or the disappearance of tenderness on deep pressure with the flat of the hand; (5) the possible presence of cough. Finally, no operation for appendicitis should ever be performed until after a careful, or perhaps repeated, examination of the lungs has been made. All these points will, however, frequently fail to make the diagnosis certain, as the experience of some of the able observers quoted has shown.

Greene, D. C., Jr.: Congenital Inspiratory Stridor. (*Boston Medical and Surgical Journal*, June 11, 1903, p. 639.)

The essential symptom of this affection is the modification of respiration during inspiration. It is like the crowing of a chicken or the purring of a cat. It is always noted immediately after birth. The sound is continuous during waking and sleeping. The voice is not affected. Temporary cyanosis sometimes occurs, but it is very rare, and is never continuous. The stridor usually lasts until the child is a year old, then gradually subsides. Certain writers claim that the essential lesion is a malformation of the upper part of the larynx, which consists in a lax condition of the cartilages at the attachment of the aryepiglottic folds, which permits an abnormal approximation of these folds during inspiration. This condition is always associated with a deformity of the epiglottis. In some cases the epiglottis is folded backward, so that its lateral edges almost meet. In others, the upper part of the epiglottis is folded downward and backward into the air-space.

Swain: The Lymphatic System and the Tonsils. (*The American Journal of the Medical Sciences*, July, 1903, p. 112.)

A case of acute inflammation of the pharynx tonsil in a child is detailed, as typical of certain masked cases of this kind that escape intelligent consideration. The child had high fever, headache, and slight snuffles; no sore-throat. Careful physical examination failed to reveal any trouble, except a red, slightly spotted and moderately enlarged third tonsil. The fever remained, with morning remissions for six days, and the cervical lymph nodes became slightly enlarged and tender. General malaise and slight febrile rise at night persisted for some weeks, and it took the child some

months to return to his former vigorous condition. The case is evidently one of distinct interference with, or disturbance of, the function of the lymphatic system. The practical deduction is to operate very thoroughly in removing nasopharyngeal adenoids, and to keep the patient under observation afterward.

Legendre: Impossibility of Suction and of Voluntary Deglutition in a Child. (*La Presse Méd.*, June 17, 1903, p. 449.)

This rare clinical fact was noted in a child with no discoverable deformity and no hereditary taint. It was impossible to feed in any way other than by gavage. It appears that there must have been some central nervous lesion here, or else a delayed development in the nervous centres, governing suction and deglutition.

It is suggested that in such a case, the functions might be educated by gradual forced feeding.

Simon: Tubercle of the Cerebellum. (*Rev. Mens. des Mal. de l'Enf.*, July, 1903, p. 306.)

A girl, eleven years old, of a tuberculous family, but with a good personal history, complained of severe headache, followed by convulsions, Kernig's sign, slight, right-sided facial paralysis, and irregular pulse. There was neither opisthotonos nor vomiting. The symptoms improved slightly, then grew steadily worse until death, two months later. The temperature had ranged about normal throughout the illness. Lumbar puncture withdrew perfectly clear fluid containing a few lymphocytes. The autopsy confirmed the diagnosis of a large tubercle in the right cerebellar hemisphere. The cerebrum was normal, but the right half of the cerebellum was occupied by a very large cheesy tubercle, and one cheesy tubercle was present on the left hemisphere.

D'Astros, L.: Pleurisy in the Newly-Born. (*La Pédiatr. Pratique*, July 1, 1903, p. 49.)

Pleurisy in the newly-born is not primary but secondary to some infectious process. One class of cases, the most common and important, is secondary to bronchopneumonia. These are almost always purulent pleurisies. Three cases are cited in babies from one to four months. In a *second* class the pleurisy is secondary to pulmonary tuberculosis. Pulmonary tuberculosis is rare before three months. In the case given the apices were studded with miliary tubercles, undergoing caseous degeneration, and

there was a purulent pleurisy. In the *third* group, the pleurisy is part of a general infection. These cases of pleurisy are rarely diagnosed antemortem, owing to their infrequency and their inconspicuous clinical symptoms. Prognosis in the cases reported has been absolutely bad.

The indications for treatment would be:—Incision and drainage, or resection of the rib, with appropriate constitutional stimulants.

Maturié: A Case of Hemiplegia with Convulsions Occurring in the Course of Pertussis of Moderate Intensity. (*La Pédiatr. Pratique*, June 15, 1903, p. 40.)

A little girl, four years old, who had been suffering one month with pertussis of moderate intensity, was suddenly taken, while at play, with cramps in the left leg, which prevented her standing. Several hours later, the left arm became paralyzed and then the left side of the face. There were no apoplectic symptoms or loss of consciousness. A very mild dysarthria and violent right-sided headaches followed. The next day the child had generalized convulsions of the healthy as well as the paralyzed side, followed by coma. The convulsions and coma occurring seven to eight times in twenty-four hours. The paroxysms of coughing ceased entirely during the convulsive period. After four days the convulsions ceased, the child regained consciousness. The fifth day, a slight return in movement was noted, and little by little the paralysis disappeared, first from the face. About four weeks after the inception of the hemiplegia, there remained only a slight weakness in the left arm and leg; and the paroxysms of coughing reappeared.

The writer believes, that as in other infectious diseases, these symptoms were simply a manifestation of an extension of the morbid process to the nerve centres.

Neter, E.: Female Genital Tuberculosis in Children. (*Archiv. f. Kinderhk.*, Vol. xxxvi., p. 224.)

From a study of 3 cases of secondary tuberculosis of the genital tract in female infants, aged twelve, fifteen and eighteen months, and the further observation of one primary case in a girl of four and one half years, as well as a review of the literature, conclusions are drawn as follows:—Female genital tuberculosis in childhood may be primary, usually in the form of tuberculosis

of the tubes, and may be the origin of a peritoneal tuberculosis. Consequently this point is to be taken into consideration in the diagnosis of tuberculous peritonitis, and the adnexa should be examined at operation for such a peritonitis. Vaginal discharge in cases suspected of tuberculous peritonitis, or in anemic and scrofulous girls should be examined for tubercle bacilli. Their absence does not exclude tuberculosis of the genital tract.

Borland, H. H.: Coagulation of Infantile Blood. (*Scottish Medical and Surgical Journal*, September, 1903, p. 163.)

The writer has made an extended series of observations of infant's blood with the object of showing that, in the early hours of life, there is a delay in the coagulability of the blood, as compared with later days. His work shows that there is an unmistakable and decided increase of coagulability from the first day of life onward. There is not a uniform rate of coagulation for children of the same age. The writer thinks that the factors in increasing the coagulability of the blood are the large excess of CO_2 and the concentration of the blood, accompanied by vigorous respiration. The weight and sex of the child have no influence on coagulation.

SURGERY.

Solomon: Multiple Suppurative Arthritis Due to the Pneumococcus in an Hereditary Syphilitic. (*Annal. de Méd. et Chir. Infant.*, June 15, 1903, p. 411.)

A little boy, two and one-half months old, of a syphilitic mother, developed three weeks after birth a specific roseola, which received appropriate treatment. About two months later multiple swellings presented themselves in the joint regions. The elbows and knees were most affected. The swellings were without redness, fluctuating and making the articulations absolutely flaccid. The general condition was one of pallor and loss of flesh and strength. An exploratory puncture of the left knee joint showed thick pus, with the pneumococcus in almost pure culture. Subsequent punctures were made in the other joints with similar results. Blood examination showed a marked anemia with a predominance of mononuclear leukocytes. The condition became worse daily, with diarrhea and dyspnea—a few subcrepitant râles were heard along the anterior borders and posteriorly at the base. There was

extreme loss of flesh with syncope and death. Autopsy showed superficial areas of bronchopneumonia, congestion of the liver and spleen. In the region of the kidney glomeruli, there were small cellular masses showing polynuclear leukocytes, eosinophilic myelocytes and plasma cells in large quantities.

On dissection of the joints there was found an intra and extra-articular collection of pus, suppurative inflammation of the ligaments and a rarefying osteomyelitis.

The chief interest of this report lies in the multiplicity of the arthropathies and their exclusive pneumococcic origin.

Alvarez, Gonzales: Multiple Bony Deformities Observed in a Newly-Born Baby. (*Annal. de Méd. et Chir. Infant.*, June 15, 1903, p. 397.)

This condition was observed in a baby, of unknown parentage, weighing 3 kilograms at birth, and well developed with the exception of the long bones, where there were many deformities resembling the results of multiple fractures. At the inferior end of the humerus of the right side, and the middle of left humerus, there were hard swellings, resembling bone callus. The forearms presented many circumscribed swellings which rendered pronation impossible. The lower extremities were increased in size superiorly, posteriorly and externally, to the extent of making it impossible to extend or abduct. The tibia and fibula showed no abnormalities. The diagnosis rested between rachitis, multiple intrauterine fractures, oospora, tuberculosis or syphilis. The first four were successfully excluded, and although there was no history of syphilis and no lesions of the skin nor mucous membrane, a diagnosis was decided upon of premature hereditary bony syphilis of the type of Paget. The child died of a concurrent acute enteritis. Autopsy showed the bony deformities well marked, and a syphilitic osteomyelitis. The author states that it is, to his knowledge, the only case observed of Paget's disease, developing rapidly in fetal life.

Kojansky, W. M.: The Treatment of Congenital Phimosis. (*Medizin. Obosren.*, Vol. lix., No. 7, p. 501.)

The author recommends a bloodless method for which he claims results equalling those of circumcision.

To begin with, daily irrigations of the sac with boric acid or lead-water are ordered. An ordinary rubber ball-syringe holding

about half an ounce will serve the purpose. The mother is instructed to insert the syringe-tip into the opening of the prepuce and gently force the fluid into the sac, distending the latter. The procedure is repeated two to three times every day, and very soon leads to improvement. After two to three weeks the prepuce is sufficiently dilated to allow of its partial retraction. Now is the time for loosening the adhesions by means of a dull probe. Once complete retraction has been accomplished, it should be maintained for one to two weeks by daily cleansing and pulling back of the prepuce over the glans, thus preventing fresh adhesions and insuring a permanent cure.

Miller, B. G.: Congenital Dilatation of the Gall-bladder and Bile-ducts. (*American Journal of Obstetrics*, August, 1903, p. 182.)

A girl, two and one-half years old, had had from birth an enlarged abdomen with clay-colored stools. The abdomen was found distended by a cystic tumor, which occupied the whole abdominal cavity, except a narrow zone in the left flank, the hypogastric and iliac regions. At operation the cyst was found to be an enlarged gall-bladder, with very thick walls. On opening it about three liters of bile containing mucus were discharged. For some time bile escaped through the drainage tube, and the stools remained clay-colored. The child gained in weight and after two months bile began to appear in the stools. The diagnosis and literature are discussed at length.

White, J. H.: Strangulated Oblique Inguinal Hernia in a Child Eleven Days Old: Operation. (*Medical Record*, August 22, 1903.)

On the fifth day of life a lump was observed in the child's right groin. Taxis failed to reduce the hernia, until chloroform was given. On the eleventh day the hernia came down again, and could not be reduced even under chloroform. Herniotomy was therefore performed. The baby made a good recovery. This is said to be the youngest case of herniotomy recorded.

Summers, J. E.: The Treatment of Papilloma of the Larynx in Children. (*The New York and Philadelphia Medical Journal*, August 22, 1903, p. 357.)

On the basis of his experience the writer recommends that a tracheotomy be done and the tube worn until the growth disap-

appears. No attempt is to be made to remove the growth. Intubation is considered unsuitable. The writer's opinions correspond with those of G. Hunter Mackenzie.

Taylor, H. L.: Peripheral Palsies Following Manual Replacement of the Congenitally Dislocated Hip. (*New York and Philadelphia Medical Journal*, August 8, 1903, p. 270.)

In observing the cases operated on by the Lorenz method the writer was struck with the slowness with which some of the patients learned to walk. On investigation it was found that the quadriceps muscle in several cases was completely paralyzed. The anterior crural nerve had evidently been injured by the manipulations. Nine instances of quadriceps palsy, one of peroneus, and one of sciatic, were found among the series of cases operated upon in December last, or later. In all the cases followed the paralysis began to recover during the third or fourth month, and the recovery was complete or was still progressing at the last examination. The prognosis is therefore good.

HYGIENE AND THERAPEUTICS.

Vargas, A. Martinez: Hedonal in the Treatment of Chorea. (*Medicina de los Niños*, May and June, 1903.)

Vargas found hedonal very efficient in the treatment of chorea. This remedy, discovered by Dreser in 1889, is propylcarbinol-urethan, and occurs in colorless crystals, melting at 76° C. It is slightly soluble in water and more readily in hot water. It is an hypnotic, and is said to be three times as powerful as chloral, but does not diminish the blood pressure or impair the heart's action. The dose is one gram (fifteen grains) daily. The author reports 2 cases of chorea in which he obtained strikingly good results with hedonal. In 1 case morphin and chloral had been found of no avail.

Hicks, H. T.: On the Treatment of the Summer Diarrhea and Vomiting in Infants. (*The Lancet*, August 15, 1903, p. 455.)

Ordinary, not excessively bad, cases generally respond to the following course. On admission a nice warm bath is given and then, with the child's head hanging over the side of the cot, the stomach is washed out with slightly alkaline water, and when this

comes away clear there are passed down the tube one drachm of oleum ricini and an ounce or two of albumin mixture with a drachm of beef-juice or raw meat-juice. If the child keeps this down he is fed again by the mouth with the same quantity in two hours. If, however, the food is rejected smaller quantities are given at shorter intervals, even as frequently as a drachm every quarter of an hour. The worst class of cases of diarrhea and vomiting, which are admitted listless, with sunken eyes, retching, and looking almost past help, after an initial warm bath, are infused with normal saline solution, about four ounces every six hours with—if absolutely necessary—the addition of a very little brandy. Washing out the stomach must be left until the patient's condition permits it, but small enemata of normal saline solution have proved decidedly beneficial. Some of the solution is absorbed and what is not retained washes out the lower part of the bowel. Feeding entirely by the intracellular way can be continued for about twenty-four hours if necessary and then drachm doses of albumin mixture tried and, if retained, increased, and small quantities of beef-juice or raw meat-juice added. After twenty-four hours of feeding with albumin mixture we can attempt a gradual return to milk and we begin by adding drachm doses of peptonized milk or Benger's food to the albumin mixture, increasing gradually, until we give either peptonized milk or Benger's food undiluted. Benger's food is more popular with babies than peptonized milk. To this course of treatment he has returned again and again after various excursions from time to time to different other forms of feeding; he has used all kinds of cream mixtures; he has used whey, but none of these were satisfactory.

Bar, Paul: A Nursling's Intolerance for Woman's Milk and Remarks on the Intolerance of Some Children for Certain Milk. (*Annal. de Méd. et Chir. Infant.*, July 1, 1903, p. 453.)

This case refers to a baby, born of healthy parents, strong at birth and weighing 4.03 kilograms. The mother nursed her child. On the fifth day she complained of painful fissures of the nipple, and nursing from this breast was discontinued, modified milk being given in addition to milk from the other breast. The seventh day after birth, the child began to show marked pallor after nursing, the stools became green and streaked with blood. There was loss of flesh and strength. Ass's milk was substituted for the sterilized milk, but the gastroenteric symptoms continued. The

mother's milk was tested and found to be good; the nursings were regulated in various ways, wet nurses were employed, all to no avail. Finally, all breast-feeding was cut off and ass's milk given exclusively, in increasing quantity, with the result that the baby slowly improved, and gradually regained its health. Wet-nursing was again tried, with an immediate rehearsal of all the former symptoms. A case is cited where a child was intolerant to cow's milk. These cases seem to indicate, that in the first case woman's milk was an intestinal poison; in the second, cow's milk acted as the irritant. Radical changes in alimentation should be immediately instituted.

Solomon: Delayed Hereditary Syphilis Treated by the Intravenous Injection of Cyanid of Mercury. (*Annal. de Méd. et Chir. Infant.*, July 1, 1903, p. 461.)

A little boy, five and one-half years, came under observation showing symptoms of undoubted hereditary syphilis. Inunctions of mercury and collargol proved ineffectual. Some months later an injection was made into the left median cephalic vein of 1 cc. of 1-100 solution cyanid of mercury. No appreciable improvement was noted. A second injection of the same amount was made into the right median cephalic vein, with the result that the labial, lingual and buccal patches improved considerably. After a third injection into a dorsal vein of the foot, the lesions healed rapidly, and finally disappeared, with no recurrence up to date.

Wollenberg, A.: A Case of Poisoning with Chlorate of Potassium in Infancy. (*Archiv. f. Kinderhk.*, Vol. xxxvi., p. 351.)

An infant of two and a half months developed an acute nephritis after being weaned. This yielded to treatment. A solution of chlorate of potassium was given to the child by mistake, instead of the Wildungen water ordered. One gram of the salt was given in about eighteen hours. The nephritic symptoms returned with greater violence, blood cells and pigment as well as casts being passed in large numbers. The skin and mucous membranes were pale and grayish in color; the conjunctivæ were icteric. Marked leukocytosis was present.

The treatment consisted of castor-oil, tannigen and salt water enemata, to obviate intestinal symptoms, and subcutaneous salt water injections, to increase the alkalinity of the blood. Cure was complete in two months.

INDEX TO VOLUME XX.

Abdomen, Cicatrix of	120
Abdominal Cases in Children	393
Abscess, Epidural	712
Abscess of Liver	556
Abscess of Lung	77, 838
Abscess, Retropharyngeal	279, 555
Abscess, Subcutaneous	541
Abscess, Subdiaphragmatic	937
Acetonemia	385, 505
Achondroplasia	18, 60, 449
Adams, S. S.	838
Addison's Disease	783
Adenitis, Retropharyngeal	279
Adenitis, Suppurative Cervical	528, 716
Adenoids	124, 393, 457
Adrianse, Vanderpoel	586
Alcohol, Poisoning	716
Alcohol, Use in Infections	720
Aldrich, C. J.	441, 827
Amaurosis, Acute	610
Amygdalitis	182
Anemia	388, 704
Anemia, Splenic	48, 78, 382
Aneurism of Arch of Aorta	293, 550
Angina, Ludwig's	441
Angina, Vincent's	200, 302, 600, 706
Antipyresis	273
Antistreptococcus Serum	74, 282, 397, 440, 442, 715, 800
Antitoxin,	49, 318, 382, 395, 748
Aphasia	693
Appendicitis	39, 153, 182, 316, 394, 863, 870
Appendix,	472
Apthæ and Herpes	531, 791
Arsenic in Chorea	158
Arthritis, Deformans	122, 477
Arthritis, Pneumococcal	610
Arthritis, Suppurative	132, 947
Arthrosis	75
Aspirin	104
Assimilation of Fat	599
Asthma, Bronchial	706
Asymmetry, Congenital	428

Ataxia	449
Ataxia, Friedreich's	148, 700
Atelectasis of Lungs	340
Ateleiosis	789
Athetosis	764
Atrophy, Treatment of, with Serum	117
Atropin, Poisoning by	879
Atropin, Use in Cholera Infantum	800
Auscultation, Abdominal	594
Autointoxication	170
 Bacteria, Growth of, in Intestine	139
Bacteria, Hemolytic Power of Bacillus Coli	383
Bacteria in Butter	300
Bacteria, Vitality in Throats of Scarlet Fever Patients	858
Barlow's Disease	235, 240, 386
Beardsley, H.	355
Bernd, Leo	33

BIBLIOGRAPHY.

Notnagel's Encyclopedia: American Edition: Diphtheria by W. P. Northrup, M.D., Measles, Scarlet Fever, German Measles, by T. von Jürsensen, M.D., Edited by W. P. Northrup, M.D.	40
Koplik: Diseases of Infancy and Childhood	116
Progressive Medicine, Vol. IV., 1902	116
Garrigues: A Text-book of the Science and Art of Obstetrics..	194
Concetti: L'Hygiene del Bambino	286
Transactions of the American Orthopedic Association, Six- teenth Session	287
Jacobi: Therapeutics of Infancy and Childhood.....	361
Von Noorden: Disorders of Metabolism	362
The International Medical Annual: A Year-book of Treat- ment and Practitioner's Index, by Thirty-four Con- tributors	363
Progressive Medicine, Vol. I., 1903	364
The American Year-book of Medicine and Surgery, 1903....	364
Redard: Traité Pratique de Chirurgie Orthopedique.....	446
Manton: Obstetrics	447
Reynolds and Newell: Practical Obstetrics	447
Rockwell: The Medical and Surgical Uses of Electricity....	526
Hatfield: A Compend of Diseases of Children	526
Spach: A Pocket-book of Infant and Childhood Dietetics....	527
Wheeler: Plain Hints for Busy Mothers	606
Rothschild: Revue d'Hygien et de Medicine Infantile et Annals de Polyclinique	606
Comby: Traité des Maladies de l'Enfance	606
Progressive Medicine, Vol. II., 1903	685
Baginsky: Lehrbuch der Krankheiten, Seventh Edition....	685
Crandall: How to Keep Well	686

The Practical Medicine Series of Year Books. Pediatrics, by Isaac A. Abt, M.D., Orthopedic Surgery, by John Ridlon	931
Barton and Wells: Thesaurus of Medical Words and Phrases.	931
Bladder, Ectopia of	120
Blood of Healthy Children	697, 947
Blood in Typhoid	698
Blum, Sanford	341
Bone-atrophy, Acute	65
Booker, W. D.	801
Bovaird, D., Jr.	817
Bowlegs, Correction of	391
Breast-feeding	530, 920
Breasts, Hypertrophy of	151
Bronchitis, Acute	533, 569, 877
Bronchopneumonia	68, 476
Bronchopneumonia, Lumbar Puncture in	697
Bronchopneumonia, Management of	533, 876
Bronchus, Removal of Foreign Body from	232, 312, 795, 938
Brown, C. W. M.	251
Buttermilk as an Infant Food	48, 298, 639
Caillé, Augustus	176, 181, 748
Calomel in Pediatrics	195
Cancer, Colloid, of Peritoneum	761
Cardiospasm	867
Carr, Walter Lester	274
Cephalhydrocele, Traumatic	289
Cerebellar Syndrome	150
Cerebellum	55, 67
Chapin, H. D.	495
Chickenpox	478
Chickenpox, Parasite of	544
Children, Care of	528, 877
Children, Development of	528
Children, Hardening of	404
Children, Liver of, Activity of	866
Children, Management of	878
Children, Prostate of	629
Children, Stomach of	115
Children, Surgery of	149
Chloroform, Fatal Effects of	940
Cholera Infantum, Atropin in	800
Chondrodystrophy Fetalis	730
Chorea	510, 630, 692, 718, 827
Chorea, Brachial Monoplegia in	261
Chorea, Fatal Cases of	135
Chorea, Treatment of	158, 718, 950
Circumcision	153, 534
Cirrhosis of Liver	71, 869
Conjunctivitis, Epidemic of	639
Connors, J. F.	185
Constipation, Habitual	160

Convulsions	550, 610
Cotter, J. J.	279
Cotton, A. C.	88
Cream	559
Cream, Supplement to Biedert Mixtnre	607
Creosotal	448
Croup	448, 703, 865
Croup, Pharyngeal	516
Cryoscopy of Urine	782
Cushing, H. W.	561
Cystitis Due to Colon Bacillus	348, 374
Cytodiagnosis	541, 627, 941
Deaf-Mutes, Examination of	352
Death, Sudden	180, 304, 311, 417, 596, 638
Deformities, Congenital	46, 119, 215, 711, 948
Dermatoses, Alimentary	71
Dextrocardia	694
Diabetes Mellitus	143, 390, 705, 707
Diacetic Acid	505
Diapers, Effects of Tight	88
Diarrheas, Pathology of	528
Diarrheas, Prevention of	530
Diarrheas, Summer	801, 868, 950
Diazo-Reaction of Ehrlich	701
Digestion, Disturbances of	530
Dilatation, Aortic	386
Dilatation, Colon, Congenital	935
Dilatation of Gall Ducts	949
Dilatation, Stomach	51, 292
Diphtheria	310, 389, 703, 763, 778
Diphtheria, Antitoxin in	318, 879
Diphtheria, Bacilli, New Stain for	222
Diphtheria, Cultures in	861
Diphtheria, Eruptions in	451
Diphtheria, Heart in	101
Diphtheria, Nasal	551
Diphtheria, Neuritis in	309
Diphtheria, Paralysis After	188, 357
Diphtheria, Treatment of Laryngeal	405
Diplegia, Cerebral, After Whooping-cough	387
Diplococcus Scarlatinae	939
Disinfection of Stools	78
Dislocation of Carpus	216
Dislocation of Cervical Vertebra	217
Dislocation of Hip, Congenital	128, 233, 234, 463, 612, 613, 712, 874, 930, 950.
Dropsy, Toxemic	73
Dropsy, Diagnosis of	125
Dropsy, Treatment of	149, 615
Ductus Botalli, Persistence of	145
Dunn, Thomas Hunter	721

Dwarf, Short-Limbed	784
Dysentery, Bacillus of	193, 543, 680, 801
Dysentery, Epidemics of	862
Dysentery, Etiology of	509, 801
Dysentery, Treatment of	527
Dysentery, Vaccination and Serum Therapy of	236
Edema of Glottis	460, 791
Edema, Malignant	556
Edema, Pulmonary, Treatment of	353
Edema, Toxemic	869

EDITORIALS.

Bacteria in Milk	35
The Shiga Bacillus and the Diarrheas of Children	112
The Fourteenth International Medical Congress	114
Instruction in Contagious Diseases	191
Pediatrics in Brazil	193
The Care of Feeble-Minded Children	283
The American Pediatric Society	285
The American Medical Association	285
Hospitals and Sanatoria for Tuberculous Children	358
The Diagnosis of Scarlet Fever	443
The Reduction of the Mortality from Diarrheal Diseases Among Children in New York	523
The British Medical Association	525
The Milk Supply of Copenhagen	603
The Prevention of Tuberculosis Among Children	681
The Progress of Intubation	754
The New York City Children's Hospitals and Schools	758
The Present Status of the Question of the Relation of Human and Bovine Tuberculosis	844
Studies of the Milk Supply of Baltimore	848
Hook-Worm Disease in Children	927
Changes in the Editorial Staff of ARCHIVES OF PEDIATRICS ..	928
Edwards, W. A.	570
Elbow	48, 65
Elterich, T. J.	189
Empyema	144, 226, 393, 547
Empyema, Bacteriology of	303
Empyema, Etiology	144
Empyema, Pathology of	136
Empyema, Prognosis	144
Empyema, Symptomatology	144
Empyema, Treatment of, Surgical	75, 711, 794
Endarteritis, Syphilitic	288
Endocarditis	182, 389, 457, 778, 855
Endocarditis, Etiology of	341
Endocarditis, Infective	800

Enuresis	157
Eosinophilia	861
Ependymitis, Acute	700
Epicarin in Skin Diseases	371, 638, 875
Epidermolysis Bullosa Hereditaria	148
Epilepsy	153, 228, 479, 704
Epilepsy, Treatment of	504, 602
Eruptions, Exanthematous	551
Eruptions from Antitoxin	395, 717
Eruptions, Recurrent Bullous	305
Erythema, Scarlatiniform	792
Esophagus, Removal of Safety-pin from	872
Exercises, Respiratory in Nasopharyngeal Lesions	43
Exostosis of Humerus	64
Failure, Circulatory, in Acute Infectious Diseases	176
Feeding of Infants	155, 396, 495, 529, 532, 719, 951
Feeding of Infants, Deficient Proteids in	586
Feeding of Infants in Tenements and Institutions	881
Feeding of Infants, Quantities in	853
Feeding of Infants with Buttermilk	48, 298, 639
Fischer, Louis	95
Fistula, Bronchial	394
Flexner, Simon	801
Foods, Proprietary, Composition of	558
Formaldehyd	220
Fourth Disease	71
Fracture of Clavicle in New-born	134
Fracture of External Condyle of Humerus	635
Fracture of Hip	713
Fracture of Skull	690
Gangrene of Toes	856
Gaultheria, Oil of, Poisoning by	692
Gelatin in Melena	268
Genu Recurvatum	553
Glioma Cerebri	705
Glycosuria	225
Gonococcus	541
Griffith, J. P. Crozer	401
Guthrie, Leonard	241
Hall, J. N.	29
Hamill, S. McC.	264, 641
Hand, Alfred Jr.	247
Hare-Lip, Double	122
Heart Disease	54, 691, 708, 768, 790, 837, 934
Heart Disease, Congenital	33, 365, 366
Hematemesis Treated by Adrenalin	557
Hematoma	39
Hemoglobinuria, Paroxysmal	105, 201

Hemophilia	307
Hemophilia, Calcium Chlorid in	360, 557
Hemorrhages	393, 549
Hemorrhages, Cerebellar	837
Hemorrhages, Cerebral, Trephining for	59
Hemorrhages, Suprarenal	68
Hemorrhages, Treatment of	268
Hemorrhages, Umbilical	308
Hemorrhagic Diseases	856
Hernia	796
Hernia, Strangulated	17, 392, 593, 874, 949
Hernia, Treatment of, in Infancy	711
Hernia, Umbilical	793
Hernia, Ventral, Congenital	340
Herpes and Aphthæ	531, 791
Herrman, Charles	18, 105
Hip Joint Disease	463
Hip Joint, Operative Treatment of	231
Hodgkin's Disease	230, 454
Holt, L. Emmett	122, 801
Hook-worm Disease	927
Hospitals, Children's	358, 855
Huber, Francis	261, 742
Hydrocephalus	152
Hydrocephalus in Syphilis	307
Hydrochloric Acid in Digestion of Casein	799
Hydrophobia, Clinical Manifestations of	552
Hymanson, A.	428
Ichthyol in Pulmonary Tuberculosis	80
Ichthyosis Hystrix	694
Idiocy	621, 687
Idiocy, Amaurotic Family	87, 776
Idiocy, Examination of Children	34
Indigestion, Chronic Intestinal	58
Infantilism	608, 766
Infections of New-born	123, 641
Infections and Injuries of New-born	659
Infectious Diseases, Circulatory Failure in	176
Infectious Diseases, Treatment of	741
Influenza	533, 709
Influenza, Bacillus of	577
Insurance of Children	749
Intestine, Disorders of	531
Intestine, Foreign Body in	122, 854
Intestine, Obstruction of	313, 316, 394, 434, 689, 793
Intestine, Small, Congenital Dilatation of	29
Intestine, Tumors of	684
Intestine, Volvulus of	872
Intubation	405, 519, 873
Intubation, Nasal	516

Intubation, Retained Tubes in	535, 637, 873
Intussusception	316, 391, 471, 636, 637, 710, 742, 792, 874
Intussusception, Treatment of	391
Inversion in Treatment of Pulmonary Edema	353, 472
Iris, Coloboma, Bilateral	120
Iritis	630
Jacobi, A.	1
Jennings, C. G.	170, 269
Joints, Chronic Disease of, Described by Still	466, 631
Joint Complications in Osteomyelitis	132
Jones, Eleanor C.	596
Judson, C. F.	510
Keratitis	304, 319
Keratitis, Interstitial	762
Kernig's Sign	143
Kidney, Cysts of	515
Kidney, Decapsulation of	561
Kidney, Tumor of	150, 321
Kilmer, Theron W.	840
Knee Joint, Erosion of	48
Knee Joint, Snapping of	214
Knox, J. H. M.	801
Koplik, Henry	335, 735, 801
Lavage of Intestine	53
Leopold, I.	348
Leukemia in Child	121, 552, 767
Leukocytes, Differential Count in New-born	66
Leukocytes in Summer Diarrheas	860
Leukoderma	921
Levi, I. Valentine	348
Lip Reflex in New-born	632
Liver, Activity of	866
Liver, Gummata of	119, 532, 791
Lumbar Puncture	60, 697, 787
Lungs, Putrefaction of, in Still-born Fetuses	542
Lymph Nodes, Bronchial	764, 944
Lymph Nodes, Cervical	855
Malaria	124, 224
Marasmus	66, 200, 279
Massage in Children's Hospitals	320
Measles	310, 478
Measles, Nonsusceptibility to	620
Meckel's Diverticulum, Invagination of	636, 689, 710
Medication, Hypodermic	714
Meningitis	60, 541, 628, 632, 780
Meningitis, Basilar, Due to Pneumococcus	138
Meningitis, Tuberculous	225, 546, 621

Meningomyelocele	232
Microcephaly	291
Milk	78, 79, 87, 145, 317, 347, 417, 536, 603, 848, 881
Milk, Bacteria in	35, 417
Milk Commission	769
Milk, Composition of Human	559
Milk, Examination of	42, 122, 558, 578
Milk, Modification of	185, 236, 396, 559, 778
Milk, Sterilized and Pasteurized	251, 318, 560, 797
Milk, Supply of Baltimore	848
Milk, Supply of Copenhagen	603
Mitchell, E. W.	182
Mitral Disease, Double	54, 768
Mitral Disease, Obstruction	691
Mongolism	161, 623
Monoplegia in Chorea	74
Monster, Double	860
Morse, John Lovett	481
Mortality and Milk Question	536
Mortality, Relief of Summer	523, 716, 878
Muir, John	161
Myelemia	388
Myocarditis, Chronic Diffuse	708
Myxedema, Congenital and Infantile	417, 476
Nephritis	182, 225, 288, 855
Nephritis, Interstitial	634
Ness, R. Barclay	921
Neuritis, Optic in Diphtheria	309
Neuritis from Whooping-cough	701
Neuroses in Childhood	72, 308, 609
Nevus, Capillary	50
Nevus Treated by Hot Water Injections	719
New-born, Infections in	641, 659
New-born, Lip Reflex of	632
New-born, Nutrition in	357, 945
New-born, Ophthalmia in	880
New-born, Respiratory Disturbances in	672
Nicholson, W. R.	641
Northrup, W. P.	516, 519, 910
Nose, Foreign Body in	317
Nose, Foreign Body in	547, 879
Nursing, Frequency of	522
Oberdorfer, A. L.	842
Ophthalmia	235, 292, 880
Opium in Carditis	855
Osler, Wm.	842
Osteoarthropathy, Pulmonary	721
Otitis Media, Acute	142, 201, 398, 868
Otitis Media, Chronic	398
Ovary, Cancer of	795

Pain, Alleviation of	118
Paralysis of Cervical Sympathetic	290
Paralysis of Recurrent Nerves	385
Paralysis, Spastic	619, 620
Paralysis, Surgical Treatment of	48, 478, 635
Paraplegia	464
Park, W. H.	881
Parotitis, Metastases in Genitalia	551
Parotitis, Treatment of	25
Pediatrics, Study of	528
Pediatrics, Teaching of, in Italy	729
Percussion, Palpatory	866
Peribronchitis	1, 196
Pericardiomediastinitis	61, 147
Pericarditis	393, 457
Periostitis	152
Periostitis, Multiple Ossifying	454
Peritoneum, Cancer of	761
Peritonitis	70, 76, 80, 81, 147, 241, 313
Peritonitis, Gonococcal	910
Phimosis, Treatment of	948
Phosphorus in Rickets	522, 798
Pierson, Edward L.	505
Piper, W. O. S.	730
Pleura, Echinococcus of	553
Pleurisy in New-born	945
Pneumonia, Cerebral	95
Pneumonia, Croupous	79, 111, 269, 510, 692, 788, 943
Pneumonia, Diagnosis of	633
Pneumonia, General Infection in	137
Pneumonia, Grippal	223
Pneumonia, Interstitial	1, 196
Pneumonia, Prevalence of, in Infancy	785
Pneumonia, Streptococcus	274
Pneumonia, Treatment of	65, 79, 95
Pneumonia, Treatment of, with Antistreptococcus Serum	481
Pneumothorax	817
Poisoning with Chlorate of Potassium in Infancy	952
Poliomyelitis, Acute Anterior	72, 75, 227, 304, 632, 766
Pott's Disease	126, 464
Prolapsus Ani, Paraffin Injections in	658
Prostate Gland, Changes in	629
Pseudocoxalgia	70
Pseudohermaphroditism	932
Pseudohydronephrosis	535
Purpura, Hemorrhagic	943
Pyelitis in Infants	585
Raynaud's Disease	450
Respiration, Disturbances of, in New-born	672
Rheumatism	457, 458, 865

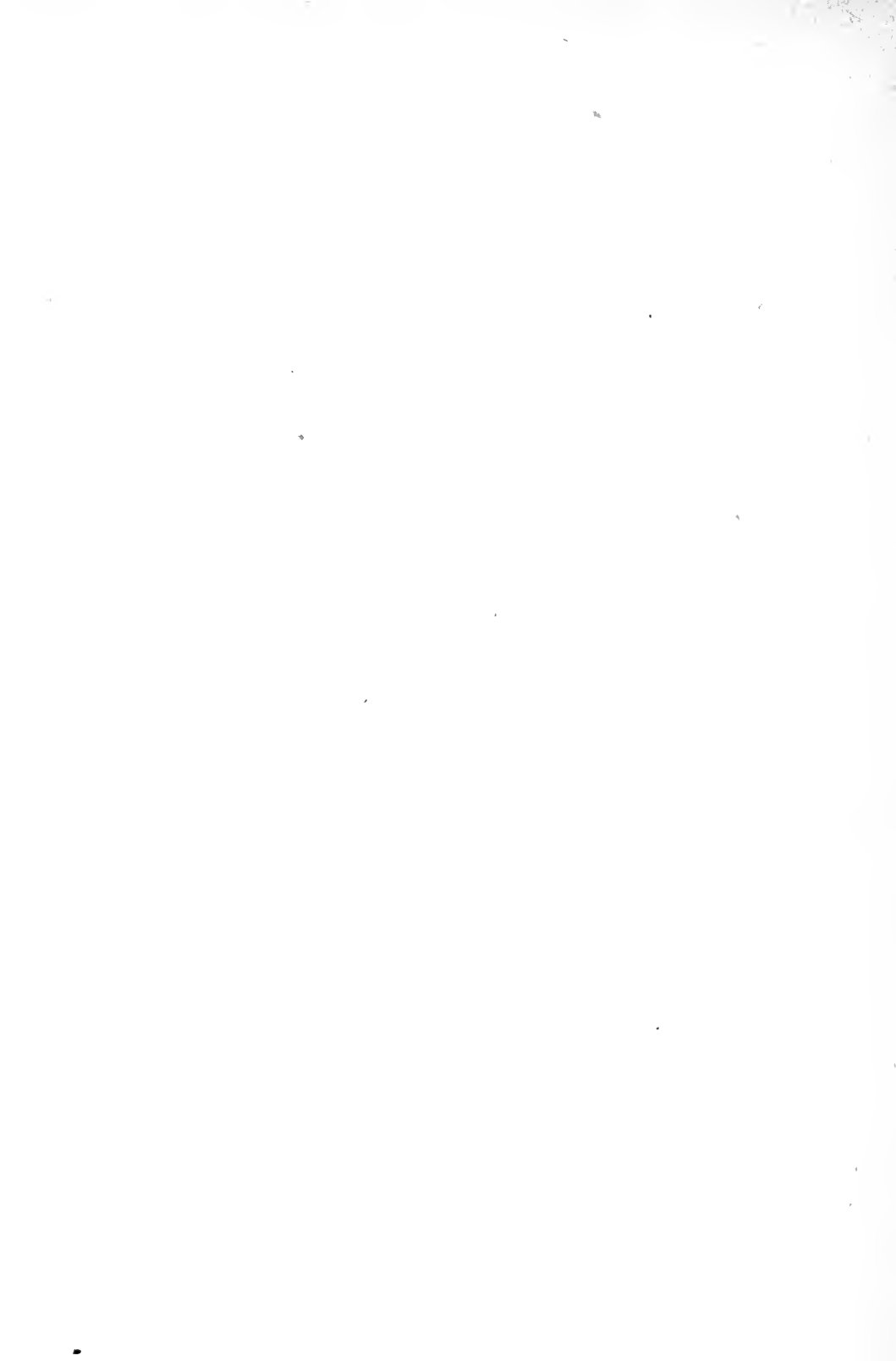
Rheumatism, Acute	630
Rheumatism, Chronic	545
Rickets	50, 122, 226, 450, 687
Rickets, Phosphorus in Treatment of	522, 798
Riga's Disease	554
Ringworm, Treatment of	640
Rosenthal, Edwin	405
Rotch, T. M.	561, 721
Royster, Lawrence T.	600
Rubella	146, 942
Sarcoma, Intracranial	223
Sarcoma of Kidney	932
Sarcoma, Maxillary	315
Sarcoma, Parosteal	449, 609, 710
Sarcoma, Vaginal	77
Saunders, E. W.	102
Scarlet Fever, Arthritis	841, 864
Scarlet Fever and Diphtheria	159
Scarlet Fever and Measles	159
Scarlet Fever, Bacteria in Throat, Vitality of	858
Scarlet Fever, Blood in	628
Scarlet Fever, Complications of	546
Scarlet Fever, Diagnosis of	136, 443
Scarlet Fever, Diffusibility of Virus of	397
Scarlet Fever, Epidemic	942
Scarlet Fever, Pilocarpin in	102
Scarlet Fever, Relapses in	156, 390
Scarlet Fever, Serum in	158, 190, 442, 715
Scarlet Fever, Surgical	871
Scarlet Fever, Treatment of	74, 397, 535, 696, 715, 720
Schachner, August	434
Schools, Conjunctivitis in	639
Schools, Trachoma in	548
Scleroderma, Circumscribed	595
Sclerosis, Amyotrophic Lateral	632
Scurvy	694, 870, 942
Scurvy, Origin of	63
Sensibility and Stereognostic Sense in Childhood	552
Shaw, Henry L. K.	578, 594
Shönlein's Disease	548
Shoulder, Discomfort in	216
Shoulder, Noisy	129
Situs Transversus	302
Skin, Dimpling of	608
Small-pox	786
Small-pox, Immunity to	859
Small-pox, in Fetus	859
Small-pox, Parasite of	544
Snow, Irving M.	659
Sobel, Jacob	418

SOCIETY REPORTS.

The American Medical Association. Section on Diseases of Children	528
The American Pediatric Society	399, 401, 537
The British Medical Association. Section of Diseases of Children	43
The New York Academy of Medicine. Section on Orthopedic Surgery	64, 126, 204 and 214, 463
The New York Academy of Medicine. Section on Pediatrics	60, 122, 200, 297, 375, 471, 623
The Philadelphia Pediatric Society	54, 196, 293, 365, 452, 612, 687
The Society for the Study of Disease in Children: London	50, 119, 288, 449, 608, 694, 761
Southworth, T. S.	353
Speech, Defects in	558
Spina Bifida	120
Spine, Curvature of	315
Spine, Typhoid	130
Spleen, Enlargement of and Anemia	704, 708
Spleen, Hydatid Cyst of	556
Spleen, Removal of Prolapsed	713
Spleen, Rupture of	316
Splenomegaly	50, 389, 855, 867, 869
Sputum, Relation of Viscosity to Cough	228
Stammering	396
Stenosis, Aortic	790
Stenosis of Larynx in Measles	794
Stenosis of Larynx following Intubation and Tracheotomy ..	624, 709, 796
Stenosis of Pylorus	355, 388, 547, 623, 703, 787
Stenosis of Pylorus, Treatment of	312
Stenosis of Steno's Duct	934
Stomach, Dilatation of	51, 292
Stomach in Child	115, 309
Stomach, Spasm of, Congenital	750
Stomach Ulcers, Multiple of	304
Stomach, Volvulus of	712
Streptococci	417, 628
Stridor, Congenital Laryngeal	865, 944
Strong, L. W.	321
Surgery, Orthopedic, Principles of	205
Sutherland, G. A.	81
Swift, Geo. Montague	26
Syphilis	116, 289, 307, 629, 634, 702, 840, 855, 867
Syphilis, Delayed Hereditary, Treatment by Intravenous Injection of Cyanid of Mercury	952
Syphilis, Heredity in	515, 926
Syphilis, Nasal	387
Tannoform in Intertrigo	716
Tapeworm, Double-pored of Dog	306

Tendon Transplantation, in Infantile Paralysis	635
Testicle, Ectopic	306, 688, 874
Tetanus	73, 199, 315, 320, 863
Tetany	32, 189
Tetany, Tremor of	630
Thymus Gland	66, 180, 427, 596, 776
Thymus Gland, Gland-canals in	699
Thymus Gland, Relation to Marasmus	66
Thyroid, Administration of	260
Thyroiditis, Acute Primary	292
Thyrolingual Duct, Persistence of	394
Tibial Tubercle, Avulsion of	796
Tongue, Enlargement of	609
Tonsillitis, Acute	182, 246
Trachea, Leech in	267
Trachoma	548
Trachoma, Treatment of	753
Tuberculosis	390, 570
Tuberculosis, Bacillus of, Isolation from Body-fluids	518
Tuberculosis, Etiology of	141, 247, 781
Tuberculosis, Human and Bovine	140, 159, 195, 301, 476, 844
Tuberculosis, Immunity, Artificial, in	858
Tuberculosis, Infection of	544
Tuberculosis, Iodoform in	876
Tuberculosis of Cerebellum	945
Tuberculosis of Conjunctiva	121
Tuberculosis of Genitals	946
Tuberculosis of Joints	94, 218
Tuberculosis of Lungs	427
Tuberculosis of Lymph Nodes	150, 154, 462
Tuberculosis of Meninges	225, 546, 621
Tuberculosis of Muscles	545
Tuberculosis of Peritoneum	70, 80, 81, 147
Tuberculosis, Prevention of, in Children	238, 681
Tuberculosis, Treatment of Surgical	873
Typhoid Fever . . . 143, 144, 335, 375, 376, 379, 386, 698, 700, 780, 790, 864	
Typhoid Fever, Hypertoxic	70
Typhoid Fever, Perforation in	76, 472
Typhoid Fever, Serum Therapy of	875
Typhoid Fever, Treatment of, with Benzoyl-Acetyl Peroxid . . . 156, 826	
Umbilicus, Granulation of	151
Umbilicus, Hemorrhage from	308
Uncinariasis	785
Urine, Cryoscopy of	782
Urine, Safranin Reaction of	534
Vaccination	73, 75, 153, 315, 319, 611
Vaccination Eruptions	147
Vaccination, Insusceptibility to	306, 347
Vaccination, Erysipelas in	640

Variola	230
Varicella Gangrenosa	570
Vulvovaginitis, Gonorrheal	388, 557, 625, 707
Vulvovaginitis, Prophylaxis in Hospitals	735
Vomiting, Recurrent	371, 505, 718
Whooping-cough	59, 357, 387, 536, 621
Whooping-cough, Serum for	59
Whooping-cough, Diagnosis of, from Blood Findings	306
Whooping-cough, Treatment of	418, 475, 714
Whooping-cough, Neuritis in	701
Whooping-cough, Complications, Sequelæ of	786, 946
Widal Reaction	376, 783
Wilson, W. Reynolds	672
Wryneck, Congenital Muscular	779
West, J. Park	730, 750
Xipophagus Twins	622
Xeroform in Pediatrics	626





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